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## DIESEL RAILWAY TRACTION

The May issue of this RAILWAY GAZETTE publication, illustrating and describing developments in Diesel Railway Traction, is now ready, price 2s.

## Work of the Productivity Teams

SINCE the summer of 1948, when Sir Stafford Cripps announced the setting up of an Anglo-American Council of Productivity consisting of representatives of employers and trade unions in Britain and the U.S.A., more than 20 teams from this country have already been to, or are now in, the U.S.A., while another 15 are in various stages of preparation for a visit. Five reports have been published so far. Last week, there was a reference in an editorial note to the visit of the diesel locomotive productivity team under the leadership of Colonel Ian A. Marriott early this year, whose report is expected to be published in July. Briefly, the purpose of the Council is to promote economic well-being by free exchange of knowledge in the field of industrial organisation, method, and technique, thus assisting British industry to raise its productivity level. Without awaiting publication of further reports the leaders of those teams which have visited the United States during the past twelve months state in a letter to *The Times* of May 2 their "profound conviction that the gains to British industry from visits such as these can be vital and enduring." They found the American industrialists more than

willing to demonstrate their processes and their methods and they have learned lessons not confined to techniques of productive processes. The letter continues: "Only uncertainty of the benefits to be derived can explain the failure of many industries to use this generous form of Marshall aid. We urge every industrialist to ensure that each industry sends to the United States the best team which can be selected." Special importance attaches to this latter point. Such teams should include men holding important positions in their respective industries and who are fully qualified to contact the representatives of American firms at the appropriate level.

## New President of L.M.A.

DURING the last three years, the maximum period permissible, Mr. Harold Wilmot, Chairman & Managing Director of Beyer Peacock & Co. Ltd., has served with distinction in the office of President of the Locomotive Manufacturers' Association of Great Britain. During that time he has given generously of his wide knowledge and his personal enthusiasm to the promotion of the best interests of British locomotive builders. On April 27 he was succeeded as President by Mr. W. Douglas Lorimer, who is Joint Managing Director of the North British Locomotive Co. Ltd. Mr. Lorimer has a long and distinguished family tradition in the industry which dates back to 1864, when the firm of Dübs & Partners, now merged in the North British Locomotive Co. Ltd., was founded. His father, Mr. William Lorimer, was Chairman of the North British Locomotive Company from 1935 to 1946, and his grandfather, Sir William Lorimer, held the same office from the formation of the company in 1903 until his death in 1922. Sir William Lorimer was also President of the Locomotive Manufacturers' Association, from 1900 until 1922, and Mr. Douglas Lorimer has established a precedent, for it is the first time that two members of one family have been Presidents of the L.M.A. He has recently returned from a visit to South Africa, where he saw delivery of the 2,000th locomotive built by the North British Locomotive Company for the Union.

## Great Northern Railway (Ireland)

AT long last there seems to be some prospect that definite steps towards a solution of the problems facing the Great Northern Railway of Ireland may be taken within reasonable time. According to reports from Dublin, discussions between the Ulster Transport Authority and Coras Iompair Eireann (the Irish Transport Company) have been concluded. These discussions have been going on intermittently for many months, but now it is stated that a comprehensive report has been prepared by Major F. A. Pope, Chairman of the U.T.A. and Mr. T. C. Courtney, Chairman of C.I.E., and that copies of it have been sent to the Ministers for Industry & Commerce of both Northern Ireland and the Irish Republic. There is good reason for believing that the basis of the study by the Chairmen of the two major transport organisations in Ireland has been the means by which the Great Northern Railway can best be fitted into a co-ordinated scheme for Irish transport on both sides of the Border.

## Burden of Taxation on Industry

DURING the past twelve months British industry has provided evidence of a rising trend in productivity and an appreciable increase in total output. There has also been improvement in the position as regards our dollar balances in recent months. Against this more hopeful outlook, however, must be set the handicap of an excessive burden of taxes, which are threatening industry with a depletion of capital which, unless put right in the near future, must make expansion more difficult and even prejudice maintenance of current output. Particular stress was laid on this point by Sir Robert Sinclair in his address at the annual meeting of the Federation of British Industries. While the increase in initial allowances for replaced capital would help, this step, he pointed out, was at best

only an anticipation of allowances that industry would receive in any case, providing no substitute for a very substantial reduction in Government spending which alone could make possible some real alleviation of the situation. Without the continual replenishment of capital British industry could not maintain that efficiency necessary to meet world rivalry. The dilemma that so many of our capital goods needed for home production had to be exported was still with us, though even if that problem could somehow be miraculously solved, taxation at present levels so depleted resources that many firms could not afford the replacements they needed.

### British Investments in Chile

**B** RITISH railway investments in Chile totalled £16 million in 1949 and have remained much the same since their sharp fall from £20 million to £17 million in 1939-40. The return of 1.6 per cent. in 1949 compares with 1.9 per cent. for the preceding year, but the yield has continued in this range since 1931, before which it averaged 5 per cent. for ten years, with over 15 per cent. in a freak year, 1926. *The South American Journal* points out that the reduction from  $7\frac{1}{2}$  to 5 per cent. in interest on Antofagasta Railway preference stock was the only variation in the figures of British railway investments. Total British capital declined by about 5 per cent. to £45 million, as opposed to a slight increase in 1947-48, but in accordance with the tendency to fall since the heavy drop from £82 million to £52 million in 1940-41. The average yield rose from 1.9 to 2.1 per cent., the highest since 1931, although the amount receiving no interest is nearly one fifth of the whole, as in the last four years. Miscellaneous British investments received interest at 3.1 per cent., as compared with 4 per cent. in 1948.

### Indian Goods Stock Brakes

**A** S an instance of the modern stock that has been in use for many years on the railways in the Indo-Pakistan sub-continent, references have been made from time to time in these columns to the fitting of almost the entire broad-gauge wagon stock with automatic brakes. In confirmation of these statements, the latest figures available—those for the year ended March 31, 1949—are given below. They apply to all types of goods vehicle, including brake vans, and excluding only cranes and their dummies, on the broad-gauge lines of the Dominion of India at that date. The automatic vacuum brake is the only type in service.

System	No. of vehicles on line	Percentage of vehicles		
		A.V. braked	Piped	Braked or piped
Bengal-Nagpur ...	28,214	91.00	8.98	99.98
Bombay, Baroda & Central India ...	11,899	96.30	2.06	98.36
East Indian ...	65,727	81.50	18.00	99.50
Great Indian Peninsula ...	25,278	90.80	9.15	99.95
Madras & Southern Mahratta ...	7,900	92.90	7.05	99.95
Nizam's State ...	2,713	86.10	11.90	98.00
South Indian ...	2,880	82.70	16.60	99.30

The number of goods vehicles not available for inclusion in continuous-brake trains is therefore negligible.

### Economy of Heavier Rails

**T** HE wisdom of British Railways in deciding to standardise on a flat-bottom rail weighing 109 lb. per yd. for main-line use, as compared with the previous 95 lb. per yd. bull-head rail, is amply justified by the latest published rail research of the Association of American Railroads, which shows that every increase in rail weight on heavily trafficked lines is of ultimate advantage. On the Illinois Central Railroad, allowing for the longer estimated life of 131 lb. as compared with 112 lb. per yd. rail, the savings in track maintenance by the adoption of the heavier section have averaged \$163 per mile annually, and in sleeper replacements \$91. The annual investment cost of the heavier rail is shown to be 6.5 per cent. less than the

lighter, and the total net saving is thus \$351 per mile annually. The Pennsylvania Railroad, with the Pittsburgh & Lake Erie, uses the heaviest rail in the world, weighing 155 lb. per yd., and relaying costs with this section are \$21 more per mile per year than with the 133 lb. rail. But the annual savings in the cost of track maintenance with the heavier rail amount to no less than \$1,278 per mile, and with savings in the renewal of ballast and sleepers amounting to \$52 and \$54 each year respectively, the net gain in favour of the 155 lb. rail as compared with the 133 lb. is \$1,363 per mile annually. As compared with the 100 lb. rail, the 155 lb. rail shows an annual economy of \$4,050 per mile per year.

### Railway Civil Engineering Exhibition

**T** HE exhibition of the work of the railway civil engineer, which is being staged to mark the year of Presidency of the Institution of Civil Engineers of Mr. V. A. M. Robertson, Chief Civil Engineer, Southern Region, has now been fixed for May 23 to June 3. It may be recalled that, when we made editorial reference to this in our issue of November 11 last, we indicated that it was proposed that the exhibition should extend for a fortnight beginning on January 20. The uncertainty of the political situation, with a general election impending, made this date impracticable. The exhibition as now planned is to be held in the North Reading Room of the Institution, in Great George Street, Westminster, and will be designed to show both members of the general public and also those in other branches of engineering and allied professions something of the little-publicised work of the railway civil engineer during the past century and more. The six main sections will be covered historically by early contemporary prints, engineers' drawings, models, and relics. Up-to-date practice will be shown by modern photographs, engineers' drawings, models, and scientific apparatus. The sections are: Early railways and their growth; Earthworks; Tunnels; Bridges; Permanent Way; Stations and buildings. The exhibition will be open to the public every weekday during the fortnight, from 10 a.m. to 6 p.m., including Whitsun Monday, and on Tuesdays and Thursdays will remain open until 8 p.m. Admission will be free. The arrangements have been made jointly by British Railways and the Institution of Civil Engineers.

### 290-ft. Aluminium Arch Highway Span

**T** HE first aluminium arch span, 290 ft. in length, was erected recently outside Quebec, and is the second important bridge having its main superstructure of this metal; the first was the combined rail and road bascule structure over the River Wear at Sunderland, described in our issue of October 28, 1949. A single aluminium plate-girder span in an otherwise steel railway bridge at Mes-sena, New York, was the first, but comparatively small, all-aluminium span to be built. Though it carries no railway, the Canadian arch is of general interest as the most recent example of the use of aluminium for major bridge-work. It is the main span of a bridge 504 ft. long with a 24-ft. roadway and two 4-ft. sidewalks over the Saguenay River; there are also five 20-ft. continuous-girder approach spans on each bank. The bridge is designed to carry two 20-ton lorries abreast, each with a rear axle-load of 16 tons, with an allowance of 30 per cent. for impact, or for a loading of 80 lb. per sq. ft. Alternatively, the design was checked for a live load consisting of an 18-ton tractor hauling a 50-ton transformer.

### Features of the Canadian Arch

**T** HE new Canadian aluminium arch referred to above is parabolic in design and weighs only 200 tons; had steel been used it would have weighed 400 tons. The ribs of the arch were erected by the cantilever method with the aid of a 7-ton overhead cableway and tie-backs. The aluminium plates consist of a 26 S-T alloy core faced on both sides with pure aluminium; 16 S-T alloy was used for the rivets, which are of  $\frac{3}{4}$ -in. dia. and were cold-riveted into holes  $\frac{1}{8}$  in. in dia. To prevent chemical action in the

structural metal,  $\frac{1}{8}$ -in. 2 S commercially-pure aluminium sheeting was inserted between the concrete decking and the structural work. Galvanised action where aluminium surfaces are in contact with aluminium or steel is avoided by coating them with bituminous paint containing aluminium powder and 5 per cent. zinc chromate. Similarly, a  $\frac{1}{8}$ -in. fibrous insulating pad is placed between the aluminium and the bronze sliding bearings under the span for the same reason. It is significant that the erection of the arch ribs was completed in a fortnight, thanks to the ease of handling the long lightweight sections.

### Gauge-Conversion in Sind

**B**EFORE the partition of India the western 319-mile section of the Jodhpur Railway main line from the Jodhpur border to Hyderabad was owned by the Government of India. It was, however, worked by the Jodhpur Railway, as it was of metre gauge in common with the Jodhpur system. Now that Pakistan has taken over this section it is natural that steps should be taken to convert it and its branches to 5 ft. 6 in. as there is no other metre-gauge railway in Western Pakistan and Hyderabad is on the main 5 ft. 6 in. gauge line from Karachi to Lahore. The Government has already sanctioned a survey for the conversion of the Hyderabad-Mirpur Khas section of this line and of the loop line from Nawabshah—also on the N.W.R. main line—to Mirpur Khas which is at present of metre gauge. Mirpur Khas is the centre and principal town in that part of Sind. Whether the section eastward to the Jodhpur border is to be abandoned, and with it a branch running south, is not yet clear, but they are unlikely to continue as metre-gauge lines when the broad gauge reaches Mirpur Khas. Any metre-gauge stock then available will, presumably, be transferred to the metre-gauge sections of the Eastern Bengal Railway in Eastern Pakistan. The track may be used on the N.W.R. 2 ft. 6 in. gauge lines.

### Higher Railway Freight Charges

**A**FTER many weeks of consideration the Minister of Transport has announced his affirmative decision on the recommendation of the permanent members of the Transport Tribunal, sitting as the Charges Consultative Committee, that the British Transport Commission should succeed in its application for higher freight charges. The increases sought were: a general advance of  $16\frac{2}{3}$  per cent. in rail freight and canal charges; in dock charges a general increase of 25 per cent. on dues on coastwise vessels and cargoes in force in 1939 to be raised to 50 per cent.; all other dock rates, dues and charges, at present 75 per cent. over 1939, to be raised to 100 per cent. The new rates will become effective on Monday, May 15, unless the regulation authorising them is subject to rejection by Parliament.

The report of the Charges Consultative Committee, which was made after a prolonged public inquiry, was passed to the Minister in the middle of February. Since then, the General Election and the Budget have intervened; the second of these events resulted in a considerable additional burden to transport costs, especially on the road side, which has made higher railway charges all the less acceptable to trade and industry. It was clear from the reception of the Minister's announcement in the House of Commons, that many members were apprehensive as to the effect on industry.

The railways have been ill-served by the delay in making the announcement. Not only do they suffer a psychological prejudice, because the advance in their charges is made after other increases, but their actual deficit, which has been estimated as of the order of £500,000 a week, is made greater by reason of postponement of the rise. The higher rates are estimated to yield about £27,000,000 in a full year. The prospective deficit of the British Transport Commission, arrived at before the Budget increases in petrol and so forth, were known, was £30,000,000 for 1950, an increase of £9,000,000 over that for 1949. On the basis of the new charges from May 15, the deficit for 1950 should be about £14,000,000. This would make the accumu-

lated deficit for the first three years of the Commission's operations approximately £40,000,000.

When the new charges are effective the overall increase in railway freights will be 81 per cent. above the 1938 level, which will still be substantially less than the rises in other basic prices. Railway costs, on the other hand, are 125 per cent. above pre-war—wages have doubled and coal costs are nearly three times as great as in 1939.

The Minister emphasised that the present advance in railway charges was intended to deal with the period until the operation of the Charges Schemes, which are being prepared by the Commission, can be brought forward. The purpose of the application was not to attempt to liquidate the whole of the losses which have occurred, or may take place before the end of 1952, by which time the schemes must be ready, but to avoid their becoming so substantial that they would seriously upset consideration of a proper charges scheme.

It is satisfactory that, in implementing the recommendations of the Charges Consultative Committee, the Government has resisted the suggestions which have been made for a subsidy for transport. In effect, the railways have been subsidising trade and industry for some years by the provision of services below cost. It appears that, to a lesser extent, that process is to continue until the revision of charges 18 months or two years hence. Advocates of nationalisation may at least claim with some justice that the increase in railway charges has been deferred for a substantial period by the operation of State control. After the 1914-18 war railway charges were speedily raised by 100 per cent. If, after the last war, the railways had been returned to their owners, the wartime control agreement provided specifically for the adjustment of charges. Article 33 of that agreement was to the effect that before the cessation of control, sufficient time would be given by the Government for the bringing into operation of the then existing statutory machinery governing the level of rates, fares, and charges. As that machinery was based on the principle of securing to the railways as nearly as possible their Standard Revenues, a far greater increase in charges than that just announced might reasonably have been expected.

### The Brown-Boveri Gas-Turbine Locomotive

**T**HE delivery of the Brown-Boveri gas-turbine locomotive, which was ordered by the former Great Western Railway in 1946, marks an important stage in the development of this new form of motive power. For the first time a gas-turbine locomotive is to be used on normal main-line service and it will thus be possible to obtain the necessary practical experience with regard to operation and maintenance which previously has been lacking.

For the design of this new locomotive, Brown Boveri has been able to draw on an ample fund of experience both as to the gas turbine set itself and as to the mechanical and electrical layout of the locomotive. A gas-turbine locomotive of generally similar design, although of smaller size, was constructed in 1941 for the Swiss Federal Railways. Brown Boveri was also the pioneer of the industrial gas turbine and the undertaking has built a large number of sets which are operating successfully in various parts of the world. The general line of design and development of gas turbines in Switzerland has followed the accepted engineering practice associated with steam-turbine plant for power stations. In this respect the Swiss outlook differs from that of most British firms whose industrial gas-turbine developments are, in general, derived from aircraft turbine practice.

The gas-turbine set on the new locomotive is of the normal open-circuit type featuring an axial-flow compressor, a heat exchanger, a single combustion chamber designed for burning heavy fuel oil, and a single turbine which drives both the compressor and the generator. The permissible maximum temperature at inlet to the turbine is 1,100 deg. F. This would generally be regarded as a conservative figure and has evidently been fixed with a view to long life and reliability. In our opinion, the Swiss engineers have followed a wise course in making use of well-tried designs and in concentrating at this stage on reliability.



The mechanical arrangement of the three-axle power bogies reflects recent Swiss practice in electric locomotive design. Apart from certain obvious differences, such as the addition of a central carrying axle, the general construction of the bogies is not unlike that of the two-axle S.L.M. bogies of the Loetschberg Bo-Bo locomotives. The steadiness of the riding of the new gas-turbine locomotive, when travelling at speed, is remarkable.

As to the future, gas-turbine traction is likely to show substantial advantages over the conventional steam locomotive only in cases where it is possible to take full advantage of the greatly increased availability which it should offer. In this respect it resembles diesel traction. Compared with diesel-electric traction, a gas-turbine locomotive has the advantage of a smaller size and weight for a given power output. If manufactured in quantity, the initial cost may also be less for the gas-turbine locomotive. Fuel costs will be slightly higher than for the diesel, but this may be offset by lower maintenance charges. A full comparison must await further operating experience. Whatever the outcome may be, tribute should be paid to the enterprise of Mr. F. W. Haworth, the former Chief Mechanical Engineer of Sir James Milne, the then General Manager, and of the directors of the former Great Western Railway for launching this important experiment.

### British Railways Summer Timetables

**B** RITISH Railways summer timetables will operate this year from June 5 to September 24, commencing a fortnight later than last summer. The salient features of the new service were described in our April 28 issue and some of the more important changes affecting each region are detailed below.

#### WESTERN REGION

The generous arrangements in the Western Region timetable for Saturday traffic between London and the West of England made last summer are maintained. Among new features are the duplication of the 1.30 p.m. Paddington to 1.25 for Torquay and Kingswear, the Penzance leaving at 1.35, and the running of separate trains from Paignton and Torquay to London at 1.35 and 2.0 p.m. respectively where formerly one train only was provided. A 1.50 p.m. from Newquay is scheduled to run independently of the 1.20 p.m. Penzance on certain Saturdays. Last year's through train from Ealing Broadway to Penzance at 9.45 p.m. on Fridays is replaced by a train at 10.12 p.m. from Paddington, calling only at Reading, thence non-stop to Plymouth. There is little alteration in the standard weekday service to and from the West, apart from an acceleration of 15 min. by the 3.40 p.m. Weymouth to Paddington "Channel Islands express"; that between London and Bristol is virtually unchanged. Bristol still lacks a fast train to London after 4.15 p.m.

In the Paddington and South Wales service last summer's 3.45 p.m. London to Swansea is extended to Fishguard, allowed 1 hr. 50 min. with one intermediate stop, Clarke-ston Road. The 3.55 p.m. Paddington becomes a through train to Neyland. On Fridays a relief is given to the 6.55 p.m. at 6.42 p.m. from Paddington, which, advertised to call only at Cardiff to pick-up, is allowed 5 hr. 53 min. to Fishguard. In the reverse direction, last year's 3.45 p.m. Carmarthen starts back from Milford Haven with connections from Fishguard and Neyland, thus providing a useful afternoon service from West Wales to London. A distinctive name, the "Red Dragon," is given to the 7.30 a.m. Carmarthen to Paddington and return working from Paddington at 5.55 p.m.

From Cheltenham the 8 a.m. to Paddington is accelerated by 5 min. and an additional train at 5.45 p.m. from Cheltenham to Kington affords connection with the 6.5 p.m. Worcester and gives an evening service from Cheltenham to London improved by 32 min.

In the Birmingham and North service the 10.10 a.m. from Paddington, which last summer ran to Birmingham daily, with through carriages for Aberystwyth and Barmouth on Saturdays, will operate on Saturdays only; with its balancing

working it resumes its pre-war name of "Cambrian Coast Express." The through carriages for Aberystwyth conveyed daily last winter by the 11.10 a.m. Paddington are retained. There is an acceleration of 5 min. between Paddington and Leamington compared with last summer by the 5.10 p.m., but the arrival at Birmingham is only one minute earlier. The 4.20 p.m. Wolverhampton to Paddington carrying through carriages from Stratford-on-Avon, which during the winter did not run on Saturdays, again operates daily, and the 2 hr. 20 min. train at 7.50 p.m. from Birmingham to London, introduced last summer as a daily train, is now Saturdays excepted.

Improvements are made at weekends in cross-country services and we note in particular the use of the Didcot and Newbury route by an additional train on Saturdays from Birmingham to Paignton.

#### SOUTHERN REGION

A welcome acceleration is made to several West of England trains. The "Atlantic Coast" expresses have been re-arranged and now leave Waterloo at 10.50 and 11.0 a.m., the former, to Ilfracombe and North Cornwall, saves 15 min. to Exeter and 25 to Torrington, and the latter, for Plymouth, is accelerated 10 min. between Waterloo and Salisbury. The 1 p.m. (former 12.50 Waterloo) recoups 10 min. to Salisbury, and 4 min. more between Yeovil Junction and Exeter, and as a new feature conveys through carriages for Lyme Regis, detached at Templecombe. The 3 p.m. (former 2.50) is accelerated 5 min. to Exeter. The "Devon Belle" no longer carries a Plymouth portion. A new facility is the provision of refreshment cars on three trains to the West leaving Waterloo on Saturdays before 9 a.m. The 10.30 a.m. from Exeter is accelerated 17 min.—9 saved between Andover and Waterloo. A booking of 90 min. between Salisbury and Waterloo for the first time since the war is given by the 12.30 p.m. Exeter, accelerated by 6 min.

The liberal services introduced last summer to Bournemouth and Portsmouth on Saturdays are maintained with several innovations, including a through train from Wimbledon to Bournemouth; there are also extra trains to Bournemouth at 10.54 a.m. and on certain Saturdays at 12.50 p.m. from Waterloo. On Fridays, much-needed relief is given to the 6.30 p.m. to Bournemouth by a 6.20 from Waterloo conveying a refreshment car.

To the Kent Coast an increased service is provided on Saturdays, involving considerable re-arrangement of last summer's working. These include non-stops from Victoria to Margate at 10.25, 11.25 a.m., 1.20 and 3.20 p.m., and in the up direction a non-stop from Broadstairs at 1.37 p.m. A double trip is made by the "Thanet Belle" on Saturdays during the peak of the season at 7.55 a.m. and 3.5 p.m. from Victoria, returning from Ramsgate 11.15 a.m. and 6.15 p.m. On the main-line via Tonbridge there are additional trains on Saturdays from Charing Cross to Folkestone, Dover and Deal. An innovation is a through train at 11.30 a.m. on Saturdays from Charing Cross via Tonbridge and Ashford to New Romney, balanced by a return working at 2.35 p.m. On Saturdays, in particular, there is a considerable increase in the number of reservable seat trains throughout the Region. A pleasing feature of the timebook is a Regional map.

#### WEST COAST SERVICES

There are no material changes in the West Coast services from those operating last summer. The "Royal Scot" is advertised non-stop in both directions, but actually calls at Kingmoor box on the down and Carlisle No. 12 on the up run.

#### LONDON MIDLAND REGION

In the London Midland Region the chief feature is the marked elimination of the recovery time previously allowed for permanent way work. The public book times correspond more closely with those of the working timetable and it is the intention to remove all discrepancies as soon as possible.

Few important changes, apart from additional weekend trains, are made in the service, which is based on last year's working. Two pre-war names, the "Welshman"



and the "Lakes Express," have been restored. The former, at 11.15 a.m. from Euston, is accelerated 44 min. between Chester and Afonwen, and the latter, which last summer ran only three days a week, is now to operate daily at noon from London.

The public timebook is prepared on the photo-offset principle from the station timesheets and in many tables it is an improvement, as it gives the public clearer and easier reading, as, for example, table 180. Some tables have not reproduced so well and in others the notes are badly grouped, but the general idea is good.

#### EAST COAST SERVICES

Last summer, the East Coast Anglo-Scottish services still had increased journey times enforced by the flooding in the autumn of 1948. Some acceleration was possible last September, and there was a further cut in timings of a few minutes from November 7, as a result of the permanent replacement of bridges between Berwick and Dunbar.

With the introduction of the summer timetable, a general improvement has taken place. The "Capitals Limited" non-stop between Kings Cross and Edinburgh, suspended during the winter, is restored, with a schedule of 7 hr. 40 min. down and an extra 5 min. up, compared with 8 hr. in each direction last summer. This timing, the fastest between Kings Cross and Edinburgh since the war, does not appear such a hard proposition as that of the "Flying Scotsman," which, with stops at Grantham and Newcastle, is allowed 7 hr. 54 min. down and 8 hr. up, an acceleration of 13 and 7 min. respectively on the schedule of last November and comparing favourably with its non-stop booking of 7 hr. 50 min. during summer, 1948. Last summer's 9.50 a.m. Saturdays only from Kings Cross to Edinburgh precedes the "Flying Scotsman" to Darlington instead of running in advance throughout. The 10.5 a.m. from Kings Cross is accelerated 15 min. to Glasgow, and the "Queen of Scots" now leaves Kings Cross at 11.45 a.m., due Edinburgh 8.9 p.m., a saving of 9 min. on last November schedule.

The 1.15 p.m. to Edinburgh is altered to leave Kings Cross at 2 p.m., a departure time that has not operated for an Anglo-Scottish train from Kings Cross since May, 1918, and one that is reminiscent of the old 2.20 p.m. in Great Northern days. With four stops, it is allowed 8 hr. 7 min. to Edinburgh, compared with last winter's schedule of 8 hr. 35 min., which included calls at Berwick and Dunbar; these stations are now served by an independent train from Newcastle to Edinburgh. The corresponding up service now leaves Edinburgh at 2 p.m., and takes 8 hr. 10 min. to Kings Cross; on Fridays and Saturdays it is preceded by a 1.25 p.m. due Kings Cross at 10 p.m.

#### EASTERN AND NORTH EASTERN REGIONS

On the former Great Northern there is some acceleration and certain new facilities are provided. Two trains on Saturdays leave Kings Cross for Skegness at 8 and 8.5 a.m. respectively, compared with one only last summer, and there is an acceleration on Saturdays of 32 min. to Hull by the 8.20 a.m., former 8.30, from Kings Cross. The "White Rose" reverts to its former departure time at 9.15 a.m., and is accelerated 4 min. on the winter booking to Leeds. Last summer's 9.40 a.m. Kings Cross to Newcastle is restored, and allowed 3 hr. 33 min. non-stop to York, a gain of 8 min. The pre-war "Scarborough Flyer" is restored, leaving Kings Cross at 11.5 a.m. On Fridays and Saturdays it is booked to York, with a stop at Grantham only, in 3 hr. 44 min.; it takes 4 hr. 47 min. to Scarborough; the up train runs on Mondays and Saturdays.

In conformity with standardisation of departure times at the even hour from Kings Cross to Newcastle, the "Northumbrian" is altered to leave at noon, thus giving regular departures from London at 10 a.m., noon and 2 p.m.

The 3.45 p.m. "West Riding" is accelerated 7 min. between Kings Cross and Wakefield, and the "Yorkshire Pullman" 5 min. between London and Doncaster. The

former 9.50 a.m. Leeds to Kings Cross now leaves at 9.55 and gains 10 min. on its previous schedule. The name "Tynesider" is given to the 11.45 p.m. (weekdays) 11.30 p.m. (Sundays) Kings Cross to Newcastle, and 10.35 p.m. Newcastle to Kings Cross.

An interesting feature on the Great Eastern section is the introduction of standardised departure times between Liverpool Street and Clacton. Buffet car trains leave London at 30 min. past each hour from 9.30 a.m. to 7.30 p.m., and 9.30 p.m.; in the reverse direction the standard departures are at the hour from 8 a.m. to 6 p.m., and 8 p.m. Some trains take 1 hr. 47 min. down and 1 hr. 48 min. up with three stops, but the 6.30 p.m. down with only two stops is allowed 1 hr. 40 min., and an additional Saturdays only train is booked from Clacton to Liverpool Street non-stop in 1 hr. 38 min.

The usual summer service with minor alterations is provided on the principal routes, with considerable rearrangement of departure times from Liverpool Street, particularly on Saturdays.

The 10.40 a.m. Liverpool Street to Yarmouth and 6.50 p.m. Yarmouth to Liverpool Street will be known as the "Easterling," and the 6 a.m. Sheringham (6.25 a.m. Cromer) to Liverpool Street and balancing service at 3.40 p.m. as the "Broadman."

For the first time, a schedule of 48 min. is to operate between Southend and Fenchurch Street. The 9.5 a.m. from Southend, altered to 9.7, and return train from Fenchurch Street at 4 p.m., introduced last winter, are accelerated by 2 min.; the non-stop run between Westcliff and London is 44 min. up and 45 down. This 48 min. booking compares with the fastest in L.T. & S.R. days—never bettered by the Midland—of 50 min. A regular interval service is now provided between Fenchurch Street and Southend during the non-business hours.

There is little of interest on the old Great Central, apart from the 11.30 a.m. Manchester London Road to Marylebone, which reverts to an afternoon departure and now leaves at 2.5 p.m., due Marylebone 7.20 p.m., with 8 stops compared with the 1948 schedule of the former 2.20 p.m. from London Road allowed 4 hr. 55 min. with 3 fewer stops. A new cross-country service is a through train between Mansfield, Nottingham and Clacton outward on Friday night and returning Saturday morning.

The North Eastern Region timetable has been prepared on the same principle as that of the London Midland, but with greater success because of the larger size of type used on the timesheets. Among accelerated services we note that of 22 min. in the Saturdays only through train from Tynemouth to Glasgow. There have been some easings between Darlington and Newcastle, such as that of the "North Briton," now allowed 50 min. instead of 46 in the down direction and 49 against 45 min. up, but the 60 m.p.h. booking of the up train from Darlington to York is retained.

The Scottish Region timetable was not available at the time of going to press.

#### INTER-REGIONAL SERVICES

Most of the cross-country services of last summer are reinstated, some with variations, such as the through train between Sheffield, Victoria, and the Kent Coast which this year is to run from and to Nottingham only, but with the added provision of a buffet car. New trains, some operating during specified periods only, include:—

8.10 a.m. (SO).	Birmingham Snow Hill to Hastings
8.48 a.m. (SO).	Hastings to Birmingham Snow Hill and Wolverhampton
10.10 a.m. (SO).	Birmingham Snow Hill to Ramsgate and Margate via Bicester
North	
8.55 a.m. (SO).	Margate to Birmingham Snow Hill, advertised to call only at Redhill
7.40 a.m. (SO).	Oxford to Bournemouth
11.40 p.m. (FO).	Manchester London Road to Hastings
12.30 p.m. (SO).	Hastings to Manchester London Road
8.5 a.m. (SO).	Bournemouth West to Sheffield
8.45 a.m.	Bradford Forster Square to Scarborough
8 p.m.	Scarborough to Bradford Forster Square
8.20 a.m. (MO)	Newcastle to Lowestoft
9.5 a.m. (SO)	
9.45 a.m. (FSO).	Lowestoft to Newcastle
11.35 a.m. (SO).	Newcastle to Llandudno
3.25 p.m. (SO).	Llandudno to Newcastle
11.40 p.m. (FO).	Leeds to Yarmouth
8.55 a.m. (SO).	Yarmouth to Leeds

## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

### Fares and Services from Nottingham

April 25

SIR,—I would like to draw your attention to some curious fare anomalies at Nottingham:—

Newark return, Eastern Region	...	...	4s. 11d.
" " London Midland Region	...	...	2s. 2d.

No cheap returns are issued on the Eastern Region.

Leicester (27½ miles) return, Eastern and London Midland Regions	...	...	3s. 0d.
Grantham (23 miles) return Eastern Region	...	...	6s. 6d.

No day returns are issued to Grantham, and all trains are slow and dirty, whereas many Leicester trains are corridor expresses. There are no trains from Nottingham Victoria to Bulwell, Hucknall, Kirkby, Sutton-in-Asfield, and Mansfield (aggregate population 150,000) between 6.40 p.m. and 9.55 p.m.

Yours truly,

J. HARGREAVES

82, Clarges Street, Bulwell

### Diversions on Four-Track Lines

April 22

SIR,—Further to the letter in your April 21 issue, my observations lead me to think that at Surbiton, anyway, electric trains running non-stop from that station to Waterloo are given decided preference over steam expresses running through Surbiton.

For example, on a "non-stop" train from Salisbury to Waterloo, we were brought to a dead stand in Surbiton Station (reached in 73 min. 31 sec. from Salisbury) and were able to watch an electric leave there and precede us on the through road to Waterloo. As far as my calculations go, if we had been allowed a clear run through Surbiton, the electric would have suffered no more inconvenience or lateness than having "one yellow" when it was ready to leave, though it would not have experienced any further checks from us.

A similar occurrence happened when I was on the "Bournemouth Belle" and also when I travelled on the 6.37 p.m. from Bournemouth. In the latter case, we first of all experienced signals at Woking due to the 7.20 p.m. from Portsmouth and then, having recovered from that, we were once again all but stopped in Surbiton Station, this being due to the 8.10 p.m. electric from Guildford which uses the fast road from Surbiton.

I got into conversation with a signalman at Woking who told me that it was the rule to give preference to steam trains, and from my station sauntering at Woking, this appears to be usually the case. At Surbiton it appears to be quite the opposite.

Yours faithfully,

R. S. HAINES

42, Harvey Road, Guildford

### Wagon Turn-Round

April 13

SIR,—It was refreshing to note, in your issue of April 7, a brief reference to "Motion Study in Industry." I wonder if Mr. D. J. Worrall, whose letter appears also in that issue, has any conception of the benefits available to industry, his own and the transportation industry, by intelligent application of the principles of time and motion study.

Mr. Worrall gives a striking demonstration of "diehard" argument. The first part of his letter describes the disgustingly archaic layout at the average colliery. Next, from the fund of his own experience, he describes how "quint" wagons are perforce treated as single units, regardless of the tractive effort wasted by so doing. Finally he asks who is to call the tune to the British Railways piper. Unless something is done soon it will be the taxpayer who will pay the piper. Before the railway rates

tribunal the steel companies, amongst others, employ counsel to argue the case against increased traffic rates.

It cannot be denied that the use of larger wagons will reduce handling costs and *ipso facto*, the railway wages bill. I have never seen advanced the argument that the savings accruing from the use of larger wagons could possibly be effected without similar capacity increases being made to the various tips, hoists, staites, and yards of the wagon users. It is quite obvious that such installations as are described in Mr. Worrall's letter are hopelessly out-of-date and expensive to operate. This being so, how much greater the savings that can be made as a result of mechanisation.

Nowadays, labour costs are the greatest of all in almost every large industry. The introduction of any methods of reducing cost; and thereby, with British Railways, of reducing losses, must be an advantage.

I cannot believe that Mr. E. R. B. Roberts hopes to raise steam before his water boils. Therefore let Messrs. Worrall, Bell and "Traffic Apprentice" realise that an attempt to hamper the logical progress of our railway system, by using as an argument the out-of-date equipment of unprogressive railway wagon users, must and will only result in increasing the burden of operating cost to the country as a whole, as such out-of-date equipment increases in dilapidation.

Yours faithfully,

A. J. PARKES

31, Alphington Street, Exeter

### Passenger Services on the West London Line

March 27

SIR,—In recent issues, particularly September 30 and November 4, 1949, and March 17, 1950, attention has been drawn by various correspondents to the lack of passenger services on the West London and West London Extension lines.

Several railwaymen with whom I have discussed this question tell me that it would be difficult to fit a reasonably frequent service of passenger trains into the timetable, due to the heavy goods traffic which has to be worked over this line. I am by no means convinced that this is so, and I write as one who has had some experience of railway operating problems. This section between North Pole Junction and Latchmere Junction carries a heavy traffic, but it is not being used to anything like its maximum capacity today.

In pre-grouping days operating difficulties may have arisen in connection with the West London Extension Railway, as no less than four companies (G.W.R., L.N.W.R., L.S.W.R. and L.B.S.C.R.) had shares in it. Even so, the L.N.W.R. managed to run a useful service between Willesden Junction and East Croydon at one time. After grouping the situation was only slightly less complicated: three companies (the G.W.R., L.M.S.R. and S.R.), instead of the previous four, each had a share in the line. In spite of this, the L.M.S.R. and Southern provided a fairly frequent service on weekdays only, although it appears that the Great Western regarded it with some disfavour. Now that the railways are nationalised, the former difficulties arising out of joint ownership (in theory, at any rate) should cease to exist.

There is a service running between Clapham Junction and Kensington Olympia on weekdays. It is not shown in the public timetables, and is but a meagre one. A few days ago I wished to travel from Clapham Junction to Kensington. I was about to take a No. 49 bus, when, through a chance meeting with a friend who had a copy of the current working timetable, I learned that there was a convenient train (5.20 p.m. from Clapham Junction, Western Section). As he was also bound for Kensington, we proceeded to the booking office, and asked for two tickets to Kensington Olympia. The booking clerk asked if we wanted the tickets

dated for use on the following day. When we told him that we wished to travel on the 5.20 that same evening he seemed surprised, but issued the tickets readily enough when he had confirmed that there was such a train.

We had the whole train of four coaches to ourselves. The train takes 8 min. for the run, whereas the journey by bus occupies about 30 min., or even longer. This is a saving in time of about three-quarters of an hour on the return journey. If only the service were suitably advertised, what a splendid opportunity it would be to attract traffic to the railway! I gathered that the particular train on which my friend and I travelled, together with one or two others, are (nominally) empty return workings of Government-chartered trains run for the benefit of Post Office employees working at Kensington. As the cost of running an empty train is practically the same as that of running a loaded one, it seems strange that ordinary passengers are not given some encouragement to patronise the service.

I was told on good authority that a special service was operated over the West London Extension line in connection with Bertram Mills' circus at Olympia last Christmas. If this was so, I, with hundreds of other potential passengers, was kept in ignorance of it. It certainly did not appear in *Bradshaw*, nor, so far as I know, was it advertised locally.

In its editorial the current issue of the *British Railways Magazine* expresses considerable concern at the falling-off in the number of passengers using railway services, and the resulting drop in revenue. The West London line is one reason for this sorry state of affairs, and one which could be put right quite easily, provided action is not delayed too long. As it is, it would be hard to imagine a more Gilbertian situation!

Yours faithfully,

DERRICK J. W. BROUGH

135, Mulgrave Road, Cheam

### Rolling Stock Costs

April 17

SIR,—With reference to the editorial note in your April 14 issue on the present high cost of rolling stock, I feel that by some changes in construction and design, costs could be reduced, both in building and subsequent maintenance.

I refer solely to the building of main-line coaching stock. First, I would suggest the outside handrails be discarded—this would reduce expenditure on cleaning time and materials—and replaced with chromium handrails inside the doorway as the traveller needs their assistance more when detraining.

Secondly, build more vestibule, or open-type coaches, which are generally preferred. This would be a great saving in building time, and in material now used for construction of compartments with double doors.

These need not be fitted with tables, as is now the general rule, but the seating could be re-arranged to face the buffers at each end of the coach from its centre, or *vice versa*, giving an overall increase in train seating capacity and greatly reduce cleaning time.

The greatest antiquity of our present coach design is the drop door window. It is the greatest single cause of draughts, and cold trains in winter, and the chief offender for the dirt and grimy internal appearance, and the admission of obnoxious fumes in tunnels, all because of the traveller being unable to manipulate these windows.

I suggest a fixed type window, with internal, thumb grip, lock release, and sliding door. Miles of expensive leather strap would be unnecessary, and there would be a great saving in the continuous replacement of the present type window and frame.

This would lessen the frequency of internal renovation, and general appearance, especially near door entrances, would be cleaner and smarter. This type of coach also reduces the cost in electrical equipment. The compartment type needs some 40 light fittings and 28 light shades, the latter being vulnerable to accidents by the unwary.

Yours faithfully,

W. FULLALOVE

43, Rufford Road, Edwinstowe

### Liverpool Street Station

April 5

SIR,—Whenever I use Liverpool Street Station I realise what a hardy race we English are, particularly those who hail from East Anglia. Surely the necessity of negotiating a footbridge to get from one part of the concourse to the other must alone make this important terminus unique. If this were due to some fundamental structural difficulty it might be borne with fortitude, for we all know there is little money for elaborate alterations to stations, however desirable. But to the casual passenger the breach is caused by three lines of railway which, although not explored, are believed to come to an inglorious end in Stygian darkness beneath the buildings overhead. They do not appear to be in constant use except perhaps for stabling purposes.

Many years ago, Waterloo was bisected by a line of railway which was only used occasionally, and the London & South Western provided passengers with the convenience of a means of crossing at platform level—a movable bridge which was stowed away when the line was required for use.

Will British Railways consider whether it would be practicable to provide some such amenity between platforms Nos. 9 and 10 at Liverpool Street? It seems to me hardly credible that such a suggestion has not been made before, but with a new broom looking for something to sweep clean perhaps it may now receive consideration.

Yours faithfully,

K. R. ALBROW

2, Arundel Avenue, Ewell

[The parallel with the old movable bridge at Waterloo is not apt, as in later years the connection between the L.S.W.R. and S.E.R. was rarely used, whereas the lines serving platforms 9 and 10 at Liverpool Street are in frequent use. Main-line trains and their locomotives often extend right up to the buffer stops beneath the hotel. A subway might meet the situation.—ED., R.G.]

### British Railways Standard Locomotives

April 8

SIR,—Mr. A. J. Maxwell, in his letter in your issue of April 7, made certain statements regarding the suitability of the new standard footplates. While some of his assertions may be correct, others are not. He states that the L.M.S.R. firedoor is unsuitable, to which I agree, but the fault does not lie entirely with the handle. The whole design of the door is years out of date, as is also the design of the G.W.R. door.

The purpose of a firedoor is twofold. The first is to allow coal to be fed easily into the firebox. The second is to keep the supply of secondary air constant above the firebed. One cannot keep a constant flow through a door which is being continually opened and closed, and the ill effects of a large amount of cold air entering a firebox are obvious.

The only design of door that fulfils this twofold purpose is the "Trap" type as used on the former L.N.E.R. In this design the main door was of the hinged type, and was closed at the start of a run and was not opened again until the finish. Coal was fed through a smaller door inset into the main one. This small door was kept open the whole of the time, thus ensuring a constant small supply of air to the firebox, sufficient to consume the smoke. The "Trap" door also kept much of the heat from the fireman while he was actually firing, and during the hours of darkness protected his eyes from the intense glare—an item of no mean importance to footplatemen.

Mr. Maxwell mentions that the fireman's arm is exposed to great heat when he goes to close the firedoor. What then would be the state of his hind-quarters when he stood in front of the wide open door firing? A fireman must stand closer to the firedoor on a locomotive with a wide firebox to get the coal round into the back corners. I hope that this will also be realised by those responsible for the design.

Yours faithfully,

R. FAREHAM

6, Byron Road, Mexborough



## THE SCRAP HEAP

### Ancillary Business ?

Flats to be let in Eastbourne.—Apply Railway Station, Eastbourne. Also comprehensive list of houses for sale.—An advertisement in "The Times."

### On Points ?

Cereal, Bacon, Vegetable, Desert, Tea, Coffee, and Sugar is not a restaurant menu, but the names of seven railway stations in the United States.—From the "Spanner" (Canadian Pacific Railway journal).

### Rugby-Market Harborough Centenary

The direct rail link between Rugby and Market Harborough, a section of the London Midland Region of British Railways which was 100 years old on April 29, might never have been built but for the initiative of George Carr Glyn, Chairman of the London & Birmingham Railway, and, later, Chairman of the London & North Western Railway.

Originally, a rival company proposed to build a line from Rugby to Huntingdon, but this scheme found little support and the London & Birmingham Railway decided to build the line between Rugby and Market Harborough if its shareholders would agree. On February 13, 1846, the shareholders gathered at Euston for their half-yearly meeting, under the chairmanship of George Carr Glyn, and when the time came for discussing the new line he won support for the scheme. The Act for the powers to build the line was passed by Parliament and work commenced in the same year.

Four years later, in April, 1850, the

line from Rugby to the new station at Market Harborough had been completed; on April 29 the line and the station were officially opened. Bands played, crowds assembled along the line-side and cheered the flag-decked trains as they passed carrying local people, dressed in their finest. In the evening, dinners were given in honour of the builders. During May, work continued and on June 1 the 10½ miles to Rockingham was opened, making 28 miles laid from Rugby.

### Locomotive Wheel in Church

An 8-ft. driving wheel of a railway locomotive, a miner's lamp, and other articles, representing South Yorkshire industries, were recently placed in the chancel of St. Jude's Church, Hexthorpe, Doncaster, for an Industrial Sunday service.—From "The Yorkshire Post."

### Brighter Travel in China

The Ministry of Railways of the Chinese Government has proclaimed April as the month of a nation-wide "passenger coach renovation movement." Following this proclamation, the Shanghai Railway Administration Office has set up a Passenger Coach Renovation Committee with the task of organising support for the movement to eliminate once and for all "the phenomena of darkness, cloudiness, disorderliness, dirtiness and slowness pertaining to passenger stock." The renovation movement will begin with train windows, doors, seats, luggage racks and toilets on main lines, and must be completed by the end of the month. It has also been ruled that in future punctuality in the departure of trains must be 100 per cent., and punctuality in arrival 90 per cent.

### On Time for Elevenses

Why does the driver of the "Golden Arrow" whistle each morning as he passes Orpington Hospital? To cheer up patients in the orthopaedic ward, which overlooks the railway. Said the Assistant Matron: "It's very much appreciated, and also useful as a time check for making coffee." Comment by British Railways: "It's one of those harmless gestures which help the world go round."—From the "Daily Mail."

### Iron Bull

The title of "Iron Bull" is now granted to locomotives of the Chinese National Railways "which have run a certain number of kilometres without incident or a major overhaul." The Russian system of team responsibility was adopted in the efficiency drive last July; each locomotive is assigned to a group of nine workers who become fully responsible for its maintenance and safe running, the nine-man groups competing with each other. In March seventeen groups in Manchuria celebrated the one-millionth kilometre of "perfect running" over a period of 155 days, and now aim at a further 150,000 km. of perfect running by May Day; their locomotives have been awarded the title of "First Class Iron Bull."

### Smoke Rings

(More thoughts on the "smoking in restaurant-cars" controversy)

Right here and now I beg to state I, too, must join the great debate, So, listen to the *cri de coeur* From yet another sufferer.

I know just how a person feels, When, forced to take his meals on wheels,

He finds some inconsiderate bloke Filling the car with pungent smoke.

I much prefer my fish and chips Free from fag-ends and filter-tips, I know the sudden lack of verve When ash descends on the *hors d'oeuvres*.

I do not find my cup of char Improved by flakes from a cigar, Nor do I think it very nice To look for match-ends in my rice.

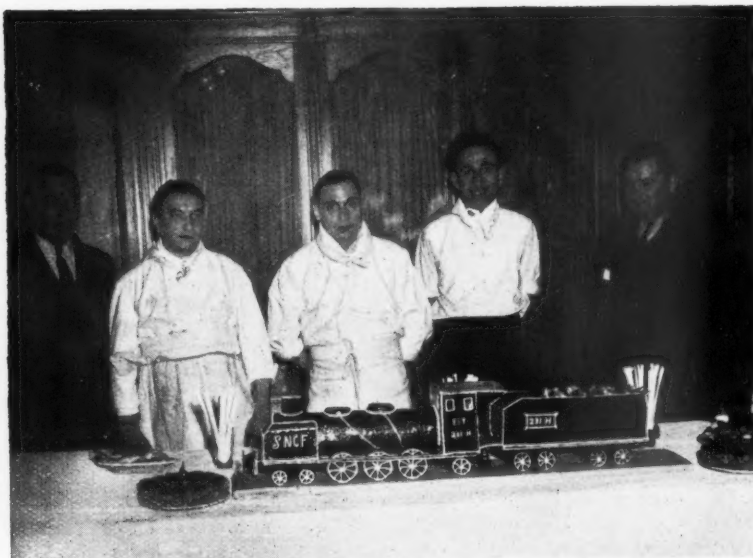
Please, Mr. Smoker, don't insist On puffing clouds of kerbstone twist Right in my undefended face Whilst I am toying with my plaise.

In spite of all these moans, I fear I must confess and make it clear I, too, adore our fragrant Queen The lovely Lady Nicotine. Well, who's for baccy? Who's for grub?

Who shall decide? Ay, there's the rub. Study the problem without haste, You'll find it's simply one of taste!

A. B.

### Engine in Sugar



Model of French locomotive made of sugar and almonds for the "Nuit de la Locomotive" Ball held by the Inter-Allied Railway Club of Paris (see article on page 525)

## OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

### SOUTH AFRICA

#### Budget for 1951

The Minister of Transport (Mr. P. O. Satow) in his Budget speech announced an overall increase of approximately 10 per cent. on all revenue-earning charges from April 1, 1950. Certain essential foodstuffs would be excluded from the overall increase, and certain classes of goods, notably minerals, might have to pay more than the 10 per cent.

The Railways Financial Committee had carefully estimated expenditure for the coming financial year and the final result, after allowing for every possible saving in working costs as well as likely increases or decreases in revenue, forecast a gross deficit of £8,700,000. This total included £1,000,000 to the Betterment Fund and a special contribution of £461,000 towards meeting the deficiency in the Pension and Superannuation Funds. The Minister estimated that the new charges would bring in a total additional revenue of £8,787,000. The 10 per cent. surcharge would be a temporary expedient.

The Minister hoped to table the report of the Railway Rating Policy Commission, under the chairmanship of Sir Charles Newton, some time this session, but so far it had not been possible to make a detailed examination of the recommendations. For this reason, subject to the exceptions, the tariff increase from April 1 was of all-round application and did not seek to bring about adjustments in the general tariff struc-

ture. The Newton Report included proposals for the introduction of a new commodity classification, and for alterations fundamental to the rate bases. It was proposed to study the document during the ensuing year, and to consult organised agriculture, commerce, and industry.

The Minister gave the following details on how extra revenue would accrue from his proposals: 10 per cent. surcharge, £7,616,000; revised rates on base metals, £224,000; miscellaneous charges, £526,000; increases on departmental cartage charges, £57,000; revised payment basis for mails carried by rail, £364,000. The total estimated revenue for the ensuing financial year is £100,890,000, and the expenditure £99,340,000. The expectations of this Budget are that all services will show a profit, with the exception of the aerodromes.

### CEYLON

#### Railways (Amendment) Act

The Railways (Amendment) Bill vesting additional power in railway officers was passed on April 4. It provides for imprisonment for those habitually travelling without tickets or in higher class compartments than their tickets entitle. Power is also conferred on station-masters, head guards of the trains and railway officers of higher rank to apprehend without a warrant a person in a train or on railway premises who commits an offence chargeable under a

written law; those apprehended are to be handed over to a police officer for inquiry and action.

### IRAQ

#### New Rolling Stock

Three standard gauge upper class sleeping and kitchen-cars, for service north of Baghdad on the line to Mosul and beyond, have been unloaded at Basrah. They are completely air-conditioned and were built by the Birmingham Railway Carriage & Wagon Co. Ltd., to the State Railways design through the Crown Agents for the Colonies. They are being followed by two non-air-conditioned upper-class cars.

The 350-mile journey from Basrah to Baghdad is made on special metre-gauge bogies at reduced speed, along with the standard-gauge bogies loaded on metre-gauge flats. The permanent bogies are fitted on arrival at Baghdad.

#### Excursions to Tourist Centres

The State Railways have co-operated with Thos. Cook (Continental & Overseas) Limited, Basrah, in providing weekly first class inclusive tours from Maqil (Basrah) to the ruins at Ur of the Chaldees and to the Euphrates town of Nasiriyah (130 miles).

Parties of between 20 and 24 leave Maqil on Thursday evenings by ordinary train in two reserved first class sleeping cars. Refreshments are available *en route*. Ur Junction is reached

### Mikados on the Nigerian Railway



Canadian-built 2-8-2 heading British-built 2-8-2 "River" class locomotive, both standard types in Nigeria

Photo]

[R. Howard

early on Friday and the coaches are detached from the main train and coupled and vestibuled to a stationary dining car, without the passengers being disturbed. Morning tea and breakfast are served and the party then travels the short distance by car to the ancient ruins. The return journey for luncheon is made direct to Nasiriyah, 10 miles away and the terminus of a branch line over which the special coaches and dining car have meanwhile been worked by booked service.

A tour of the town and surroundings by car is arranged in the afternoon and visits may be paid to the bazaars, gardens and cinemas. The party leaves after dinner, the special coaches being attached to the normal branch train and again to a main-line train at Ur Junction. The train reaches Maqil at 6.25 the next morning, but for passengers returning to Persian Gulf destinations by air, the special coaches are subsequently shunted to Maqil Airport.

Additional weekend tours are being arranged from Basrah to the middle-Euphrates town of Hillah and the ruins

of Babylon (287 miles), and to Baghdad (353 miles). Preparations are also in hand for inclusive short-leave tours to the mountain resorts of Kurdistan, managed by the State Railways and reached via Mosul or Erbil.

## IRELAND

### Strike of Locomotive Men

An unofficial strike of engine drivers and firemen of Coras Iompair Eireann began on the night of April 29 at Limerick over a demand by the men for promotion from firemen to drivers on a seniority basis. It spread first to Cork and Inchicore depots, and later to Grand Canal Street (Dublin), leaving Broadstone the only Dublin depot unaffected. The men have rejected the appeal of their three unions to resume work pending negotiations.

The first effect of the strike was the suspension of services on the Dublin to Cork and Limerick lines, and branches. The locomotive men at Bray announced that they would join the strike

on the night of April 3. The services from Dublin to Galway have not been involved.

## WESTERN GERMANY

### More Passenger Rolling Stock

The placing in service, as from May 14, when the summer timetable becomes operative, of 30 per cent. more semi-fast trains and 10 per cent. more fast trains has been made possible by the release of 40 second class and 160 third class coaches hitherto reserved for the occupation authorities. The former Mitropa rest-cars (*Liegewagen*) have been converted into third-class sleeping cars which are very popular. A large number of this type of car will be placed in service as from May 14.

Ten new railcars are to be placed in service in the Hamburg and Augsburg areas. They are 34 ft. 5 in. long, and accommodate 53 passengers, with room for 56 standing passengers. Their maximum speed is 56 m.p.h.

## Publications Received

**British-Caprotti Valve Gear.**—Published by Associated Locomotive Equipment Limited, 30, St. James's Street, London, S.W.1. 11½ in. × 8½ in. 48 pp. Illustrated. Price 5s. This publication deals in considerable detail with the design and application of the British-Caprotti system of steam distribution employing poppet valve gear controlled by camboxes driven by rotary gear. There is a general description of the valves, cambox driving, and reversing gear for two, three and four-cylinder locomotives, and this description is illustrated by photographs, sectional drawings, and diagrams giving a clear picture of the various components and sub-assemblies. These include the camshaft assembly, with reversing crankshaft and rods in position, a view of the cambox showing the rocking lever assemblies, and a cambox with the cover removed to show the method of dismantling. Other illustrations include details of the camshaft and reversing shaft, exhaust cam details, and the components which constitute the axle drive. Included also are maintenance instructions, and details of the application of the British-Caprotti valve gear to various classes of locomotives and marine engines.

**L'Année Ferroviaire 1950.** Paris 6c: Librairie Plon, 8, Rue Garancière. 9 in. × 5½ in. 238 pp. Illustrated. Paper covers. Price 495 fr. Published under the auspices of the French National Railways, this book provides valuable statistical and other factual information, preceded by articles on various railway topics. Current information includes analyses of traffics and of S.N.C.F. steam, electric, and diesel locomotive types, and notes on staff and financial questions and on electric power supply. Monsieur Poncet, Manager of the South-Eastern Region,

writes on the Paris to Lyons electrification, of which the first stage was described in *The Railway Gazette*, January 27 issue; with his article is supplied the draft train diagram of the whole line after completion of the scheme. Monsieur Jouffroy, Chief Engineer, contributes an article on the relation of rail and road in the early days of French railways; Monsieur Doubrère, Inspector General, writes on railways and the cinematograph; General Bergès on railways in war, with particular reference to the 1944-45 campaign in North-west Europe; and by Monsieur James de Coquet there is a brilliantly written essay on railways and grape traffic.

**Gears and Gear Units.**—An illustrated brochure containing selected technical data of considerable assistance to gear users has been issued by David Brown Gears (London), Limited, North Circular Road, London, N.W.10. The data are prepared to enable users to select the most suitable gears or unit for their purpose, or to prepare blanks of correct dimensions where they require gear-cutting service. The brochure also contains information on the installation and maintenance of Radicon worm reducers and other products of the firm.

**Where You Fit In.**—The Road Haulage Executive has prepared this 16-page illustrated booklet to ensure that its employees will have a full appreciation of their part in the new organisation. It is shown how almost the whole of British long-distance road haulage is being formed into eight geographical Divisions, each containing a number of Districts, in turn subdivided into Groups. Separate editions have been prepared for each Division, and the narrative, which is brief, but informative, is amplified by a number of diagrams. Major-General G. N. Russell, Chairman of the Road

Haulage Executive, has contributed a personal note in which he emphasises the importance of every individual in the organisation, and there is an outline of the arrangements for negotiating terms and conditions of employment, together with a note on trade unions. The part played by the Road Haulage Executive within the British Transport Commission receives special attention, and a note emphasises that British Transport is obliged by law to pay its way and shows that in the long run the amount each man gets out of it must inevitably depend on the amount of business done and the cost of doing it; there was no question of the taxpayer and Treasury coming to the rescue year after year.

**Modern Magnet Alloys.**—A review of progress made in the development of permanent magnet alloys is given in an article by Mr. Allan Torry and Mr. Alun Edwards in the March issue of the *Nickel Bulletin* published by the Mond Nickel Co. Ltd. The magnetic properties of nickel-alloy irons have assumed increasing importance with the development of radar, television, and electronics, while of special interest to designers of such equipment are tables giving the properties of standard permanent-magnet alloys and a diagram showing the sizes of magnets in different materials required for the same energy and performance. Abstracts of current published information of nickel and its alloys are also included in this issue of the *Nickel Bulletin*.

**Concrete Roof Beams.**—A lightweight concrete roof beam designed primarily for use where a light economic roof is required, has been developed by Dow-Mac (Products), Limited, Tallingford, Stamford, and is described in an illustrated catalogue which includes dimensional drawings and technical information on the standard beam and those of special design.



## British Railways First Gas-Turbine Locomotive

*Brown-Boveri 2,500-h.p. locomotive for the Western Region incorporating a single-stage open-cycle turbine with heat exchanger*



THE Brown-Boveri gas-turbine locomotive, built for the former Great Western Railway Company and recently delivered to the Western Region, British Railways, is about to go into service. The locomotive arrived in this country during the first weekend of February. Since then it has made a number of trial runs and has been subject to the usual tests.

The locomotive is double ended; two identical cabs giving unobstructed lookout are provided. The power unit, consisting of gas turbine, compressor, heat exchanger, combustion chamber, and geared generator assembled on an auxiliary frame, takes up the larger part of the machine room, which is partially sub-divided by the air intakes to the compressor.

At the combustion chamber end is the auxiliary diesel-generator set, the train-heating boiler, and one of the traction motor fans. The other fan is placed at the main generator end, together with the mechanically-driven and the motor-driven exhaust-compressor sets for the brakes.

Fuel oil, lubricating oil, and water are carried partially in the roof and partially in the middle portion of the main frame.

### Principal Dimensions

The main technical data of the locomotive are as follow:—

Gauge	...	...	4 ft. 8½ in.
Length over buffers	...	...	63 ft. 0 in.
Max. height from rails	...	...	13 ft. 4 in.
Diameter of driving wheels	...	...	48½ in.
Diameter of carrying wheels	...	...	38 in.
Continuous rating of gas turbine unit	...	...	2,500 h.p.
Tractive effort at wheels	...	...	
During starting	...	...	31,500 lb. up to abt. 21 m.p.h.
Continuously	...	...	12,400 lb. at 64 m.p.h. 8,400 lb. at 90 m.p.h.
Maximum speed	...	...	90 m.p.h.
Number of driving axles and traction motors	...	...	4
Weight of mechanical part	...	...	118,000 lb.
thermal	...	...	72,000 lb.
electrical	...	...	53,000 lb.
Weight of stores (fuel, water, sand, etc.)	...	...	17,000 lb.
Weight per axle	...	...	43,000 lb.
Adhesive weight	...	...	174,000 lb.
Fuel	...	...	Heavy fuel oil

The mechanical part supplied by the

Swiss Locomotive & Machine Works consists essentially of two identical three-axle bogies, the main frame, and the coach body supported thereon.

The frame and transverse beams of the bogie are of tubular section, made of high-grade steel and welded throughout, as shown on page 508. Care has been taken to avoid excessive concentration of stress. The bogie frame rests on the axle boxes through helical springs.

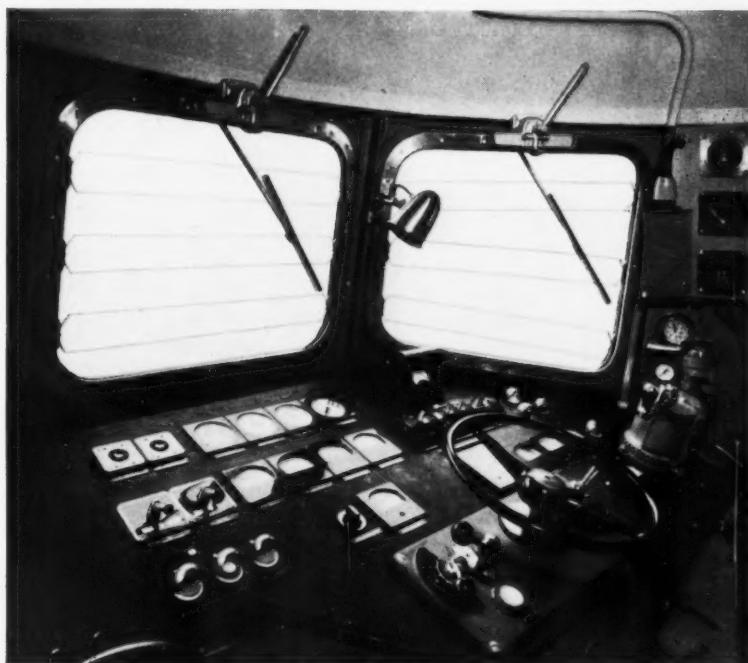
The axle boxes have SKF roller bearings and are guided by two vertical cylindrical pins. These pins are case-hardened and ground. Screwed inside them are rods for holding the boxes in a downward position and for fixing the friction dampers. To damp out vertical oscillations a dry friction damping de-

vice is provided underneath, the amount of damping of which can be adjusted.

The two outer axles on each bogie are each driven by an electric motor through gears; the centre axles on each bogie are carrying axles. The driving axles are held sideways on the driving side only, the outside race of the roller bearing being held there between the two covers of the bearing. On the other side the roller bearing is provided with a certain amount of side play.

### New Bogie Design

The arrangement for the support of the body and the transmission of the tractive and braking forces are shown in the sectional drawing, which gives a cross-sectional view of this new design of 3-axle bogie with lateral play of the



*View of driver's cabin showing the controls*

middle axle, as developed by the Swiss Locomotive & Machine Works, Winterthur.

As will be seen from the same drawing, the body rests at each side on the two corresponding springs 12 and 13 through the supports 17 and 18 lodged in buckets forming one piece with the buckle of the springs. These buckles and consequently their springs 12 and 13 are made to move integrally with the main frame by the links 16. The ends of the springs forming one pair are connected by equalisers 11 which transmit their load to the frame through the inclined swing links 14. They are also joined to each other by means of the floating beams 10 which, for sideways movements, make

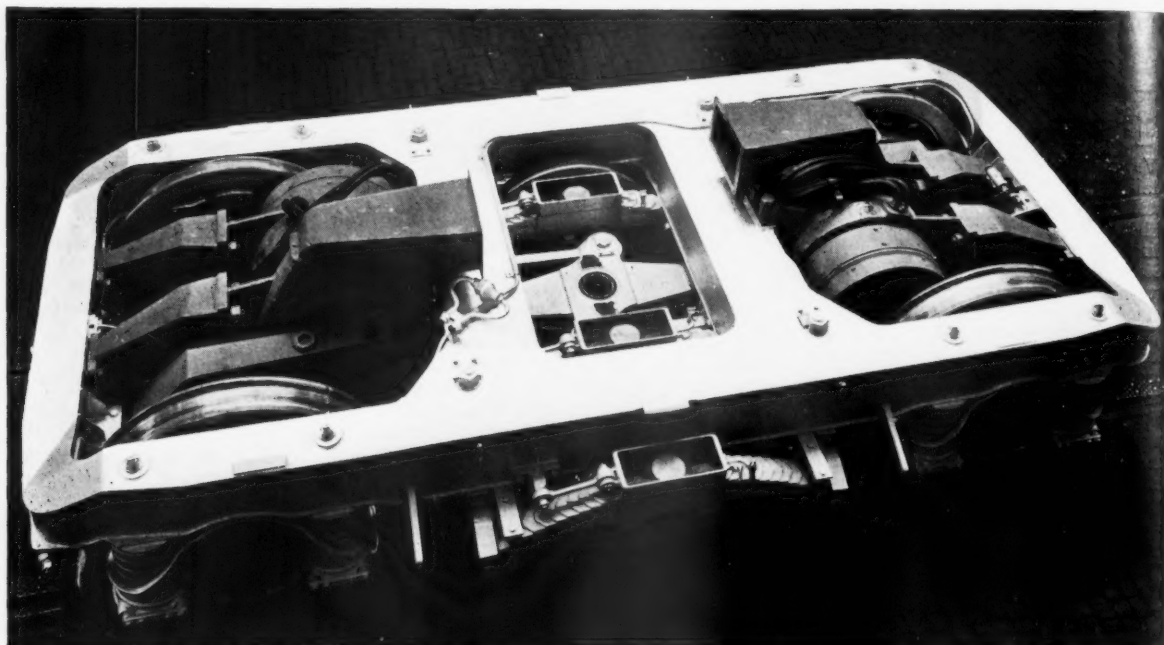
the wheels, axle, axle boxes, and the carrier disc. In addition, the spring drive gives the possibility of utilising very high-speed driving motors of big output and light weight.

Transmission of the torque to the driving axle is on one side only; see illustration on page 509. The working principle of the Brown Boveri spring drive can be seen from diagrammatic views of the axle drive illustrated on pages 511 and 512. A quill stump 1, secured to the housing of the motor, surrounds the driving axle 7 with sufficient play to leave complete freedom to the relative movements of the driving axle and the underframe. The gear wheel 3, driven by the motor pinion 2, is carried by two

gear case 6, which also allows of effective lubrication of the teeth and of all moving parts. The lubricant (oil) is taken up by the gear wheel and maintained in constant circulation over all vulnerable parts.

The underframe of the locomotive is carried on the bogie bolsters as previously explained. The underframe girder is welded throughout and built up of constructional steel sheet. The cross stretchers and stiffeners are secured by rivets. Built into the underframe between the bogies are the tanks for water, heavy fuel, and lubricating oil. Fixed to this section of the underframe are also compartments for the storage battery and pump sets.

The auxiliary frame carrying the



*Showing the bogie frame of tubular construction, centre pivot, and side bearers*

them move integrally with the body by means of the coupling links 9 and the cross-head 5. All articulations between the body and the bogies for controlling lateral and longitudinal motions, are fitted with Silentbloks. To allow of the side play of the middle axle, the axle box 21 is separated from the guides 24 and the vertical load is transmitted from the box to the guides by means of the floating beams 22 and 23 which also exert on the axle at the same time a certain centring force.

The driving motors transmit their torque to the wheels through the Brown Boveri individual axle drive with quill stump and spring coupling. With this drive a considerable reduction is achieved in the total unsprung weight in contradistinction to nose-suspended motors, because it allows the motor and gear to be rigidly fixed to the bogie frame.

The unsprung weight is thus reduced to a minimum, comprising only

spherical roller bearings mounted on the quill stump. The transmission of the torque from the gear wheel to the driving axle is flexible through 8 coil springs 4, which are built into the spring cups. The lips 5 on either side of the rim of the gear wheel form the sides of the spring cups. The two ends of each coupling spring are formed by caps which are guided in the cups. A carrier disc 8 pressed on to the axle, and the 8 rugged spider arms of which press on the spring caps, forms the coupling between the big gear wheel and the driving axle which can move vertically. The coupling springs are compressed when relative movement occurs between the carrier arms and the gear wheel. Stressing of the springs due to centrifugal force can be disregarded because the springs press on their whole length against the outer wall of the spring cup. The whole gear with springs and sliding surfaces of the spring caps is protected from dust and dirt by a closely-fitting

entire thermal power unit is supported in the main frame on a three-point suspension. The arrangement prevents the elastic distortions of the locomotive from being transmitted to the auxiliary frame and thus to the thermal unit, and secures a very steady riding of the locomotive.

The sections of the locomotive body, that is, the side panels as well as the roof sections, are bolted to ribs (continuous or in sections where necessary), whereby sufficient elasticity of the whole structure is secured and the body as a whole can follow the deflection of the locomotive main frame, which amounts to approximately  $\frac{3}{8}$  in., without distortion of the individual parts.

#### **Coach Body**

The coach body is sub-divided by tightly-fitting partition walls into two closed-off driver's cabs and the engine room. Each cab has two side doors and a third one leading to the machine

room, which is provided with two side gangways. The two driver's compartments are riveted to the main frame, whereas the middle part of the body is bolted for its whole length to the floor plating of the frame. With the exception of those of the train-heating boiler compartment, all side panels can be removed from the body frame on the outside so that the greatest possible accessibility to the power unit and

a second brake handle which acts only on the locomotive pressure brakes, which affords particularly smooth and exact braking of the locomotive when engaged in shunting or running light engine.

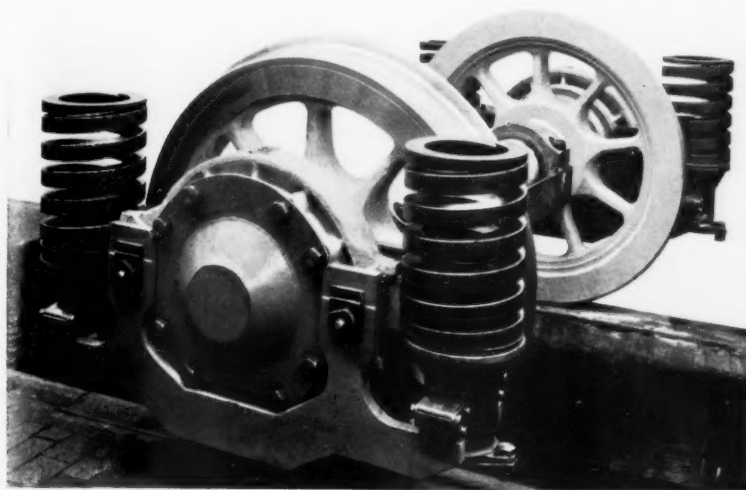
The compressed air for the engine brakes and pneumatically-operated apparatus and the vacuum for the train brakes are generated by two reciprocating exhaust-compressor sets; one

ing brake set of the corresponding bogie. Electrically-controlled pneumatic sanders are provided for the driving wheels.

#### The Gas-Turbine Power Unit

A single-stage open-cycle gas turbine with heat exchanger is used for the power unit, a cross-section drawing of which is shown. The air is aspirated by the compressor, compressed, passed through the heat exchanger where it is preheated, and delivered to the combustion chamber. There, one part of the air is used for the combustion of the fuel oil injected under pressure, whilst the remaining and by far larger portion of air serves for cooling the side walls of the combustion chamber and for reducing the gas temperature at turbine inlet to the value determined by the heat-resisting qualities of the blade material and the long service life demanded for such a plant. The hot gases expanding in the gas turbine produce mechanical work, part of which is used to drive the compressor, and the rest, forming the actual useful output, transmitted to the main generator through a reduction gear. Before escaping through the roof to atmosphere the turbine exhaust gases pass through the heat exchanger, giving up part of their heat to the compressed air on its way to the combustion chamber, which brings about a corresponding reduction in fuel consumption.

The air is aspirated through openings symmetrically placed in each side wall of the locomotive and connected to the

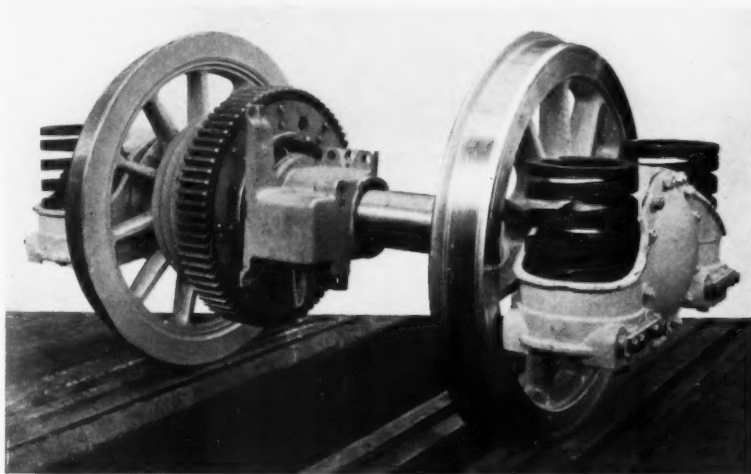


*Floating beams and helical springs*

apparatus is provided. The central portion of the side walls is occupied by the oil cooler assembly consisting of three coolers on each side. As regards the frame of the body itself, the main body ribs between the compartment for the steam-heating boiler and that for electrical apparatus can also be removed so that the complete power unit, including generator and combustion chamber, can be placed in position from above.

The roof sections over the train-heating boiler and over the power unit are removable to facilitate the erection of the larger parts of the equipment. The roof above the combustion chamber is provided with ventilation louvres, and the part over the heat exchanger with longitudinal baffled slots which allow the exhaust gases to escape without permitting rainwater to enter. The roof portions above the auxiliary diesel and the rear cab accommodate service tanks for water and light fuel oil.

The locomotive has a compressed-air brake system for the locomotive and vacuum brake equipment for the train. This arrangement was necessary because the restricted overall dimensions to which the locomotive had to be built precluded the use of vacuum equipment on the locomotive. The two systems are so combined that by the operation of one control handle by the driver the brakes are simultaneously and proportionately applied both on the locomotive and on the train. In addition, however, the driver has at his disposal



*Gearwheel mounted on axle and quill stump for fixing to motor housing*

is electrically-driven, and the other belt-driven from an extension of the generator shaft.

#### Brake-Rod Arrangement

The brake-rod arrangement of each bogie is divided into two independent sets, each actuated by a separate brake cylinder which allows of considerable simplification and unification of the different parts. The brake cylinders are located underneath the outside cross stretchers of the bogie frame. The hand brake in each cab acts on the neighbour-

air intakes of the compressor by two enclosed ducts. This has been done to prevent the combustion air becoming mixed with oil vapours or preheated in the machine room. The casing of the multi-stage axial flow compressor is of cast steel and rests on the auxiliary frame, which also carries the gas turbine and the generator with gear. The compressor blades are of special steel. The air outlet pipe from the compressor is provided with several expansion joints to deal with the different expansions of the gas-turbine set and the air heater. The





latter consists of a great number of tubes expanded at both ends into tube plates.

In contradistinction to plants derived from aircraft design there is only one combustion chamber, which is lined with removable sections of special steel. The fuel is delivered by a separate pump set and sprayed into the combustion chamber by a single centrally-located injection nozzle of special design. The combustion air is admitted to the spray through swirl vanes. The set is started up on light fuel (diesel) oil, and when thoroughly warmed through is changed over to heavy fuel-oil for normal service.

To obtain good atomisation in the burner nozzle, the high-viscosity heavy-fuel oil used is preheated in a system of tubes placed in the stream of the exhaust gases. The flame in the combustion chamber is ignited at starting of the set by an electrically heated ignition element. As the combustion gases pass down the combustion chamber they are gradually mixed with the excess air until a uniform temperature is reached at the gas-turbine inlet.

The inlet casing of the multi-stage reaction-type gas turbine is of special cast steel, and the blades of a special heat resisting alloy. Stainless steel has been used for the slotted roof portion over the heat exchanger through which the exhaust gases leave the locomotive. To reduce radiation losses all parts of the power unit are lagged and covered with aluminium sheeting.

The gas turbine and the air compressor are each supported by two journal bearings; the compressor end bearing is a combined journal and thrust bearing to take up any residual axial forces of the set. The generator is driven from the compressor shaft through a single helical reduction gear equipped with a special collar to take up the axial thrust due to the inclination of the teeth. Pinion and compressor shaft are connected by a toothed type coupling. All bearings of the thermal-electric unit are lubricated by oil under pressure supplied from a direct-driven gear type oil pump located in the main gear case. Fin type oil coolers are mounted in the air intake openings in the side walls of the locomotive.

#### Power Unit Data

The following are the main technical data of the gas-turbine power unit at full load.

Compressor delivery pressure	... 36 lb. sq. in. g.
Gas turbine inlet temperature	... 1,100° F.
Exhaust gas temperature	... Abt. 480° F.
Gas turbine and compressor speed	... 5,800 r.p.m.
Gear ratio	... 6.6:1
Generator speed	... 875 r.p.m.
Input at generator coupling	... 2,500 h.p.
Overall thermal efficiency	... 16.9 per cent.
Corresponding fuel consumption	... 0.87 lb. h.p. h.
Overall thermal efficiency at 80 per cent. load	... 17.5 per cent.

Characteristic data of the heavy fuel oil used are:—

Specific gravity	... 0.95 at 60° F.
Viscosity	... 950 sec. Redwood I at 100° F.
Net calorific value	... 17,400 B.T.U./lb.
Ash content	... Abt. 0.05 per cent. (0.1 per cent. max.)

A simplified diagram of the main electrical circuits is shown on page

510. The main generator supplies the four d.c. traction motors, which are continuously connected in parallel, through the motor isolating switches and the reversing switch which determines the direction of running of the locomotive. The motors are protected by overload relays in the main motor leads acting on the isolating contactor of the respective motor.

#### Electrical Equipment

The electrical equipment comprises the main generator, the traction motors, the auxiliaries, and control apparatus.

*The main generator*—To obtain the strongly drooping characteristic essential for traction purposes the generator

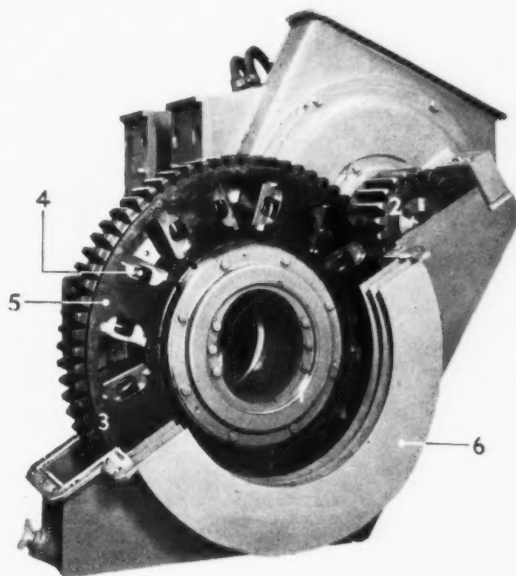
fan is placed on the commutator side. The cooling air is drawn in on the driving side and expelled underneath after passing over the bearing.

The main generator is a multi-polar machine with commutating pole and compensating windings.

The ratings of the main generator are as follows:—

Continuous rating	... 2,340 A. at approx. 675 V.
One-hour rating	... 2,640 A. at approx. 760 V.
Max. working speed	... 875 r.p.m.

The traction motors are entirely springborne (*i.e.*, free with respect to axles) and rigidly fixed to the bogie frame. The motor torque is transmitted to the driving wheels by means of the Brown-Boveri spring drive.



1. Quill stump secured to motor housing 2. Motor pinion 3. Big gearwheel  
4. Transmission spring 5. Gearwheel flange lip 6. Gear case

#### Traction motor with Brown-Boveri individual axle drive

is equipped with three inter-acting excitation windings, namely: a counter-compound winding, a shunt winding, and a separately excited winding. The latter is fed from the auxiliary generator.

The rotor carrying the electrically and magnetically active part of the armature is a hollow steel casting. At the driving end the armature shaft is constructed so as to form a flange which is bolted rigidly to the flange of the reduction gear so that at this end the armature is supported by the bearing of the reduction gear. The generator itself has only one bearing at the commutator end, and is of the journal type lubricated by oil under pressure. The armature lamination assembly is pressed on to ribs on the hollow rotor.

The commutator is bolted to the hollow armature shaft. The brush holders are carried by easily removable brush arms of a similar construction to those of the driving motors. The brush gear can be rotated.

The generator is self-ventilated. The

The motors are of the series wound type and have forced ventilation. Their ratings are as follow:—

Continuous rating	397 kW., 720 V., 585 A., 1,550 r.p.m.
One-hour rating	394 kW., 636 V., 660 A., 1,290 r.p.m.
Gear ratio	21:73 = 1:348

The motors have a cast-steel frame containing six main poles and six auxiliary poles. The armature shaft runs in roller bearings. The six brush carriers, each carrying two brushes, are supported by a ring which can be turned to allow of access to the brushes by the opening underneath the motor.

*The auxiliaries*—The locomotive is equipped with an auxiliary direct current generator driven by a six-cylinder four-stroke Saurer diesel engine. In addition to the separate excitation current for the main generator the auxiliary generator provides the power for all the auxiliary machinery, lighting, and heating on the locomotive either direct or through the battery which it is charging. When starting the gas turbine power unit the auxiliary generator supplies the

necessary power to the main generator which runs as a motor. Finally, the auxiliary generator can be connected to two of the traction motors (one in each bogie) and thus drive the locomotive as light engine.

**The auxiliary generator**—The construction of the auxiliary generator is similar to that of the main generator. The rotor carrying the armature stampings is a hollow steel casting which is flanged rigidly to the flange of the diesel engine. The auxiliary generator has only one bearing which is situated at the commutator end and is of the roller type. The armature lamination assembly is pressed on to ribs on the hollow rotor. The commutator is bolted to the hollow

this set is to supply at a constant voltage the control and lighting circuits on the locomotive. It consists of a motor and generator built together as one unit. An automatic voltage regulator ensures a constant output voltage.

**Control oil pump**—This pump maintains the oil pressure in the hydraulic control systems of the locomotive, as well as lubricating the bearings of the power unit until the speed of the latter is sufficient for the direct-driven lubricating pump to function.

**Cooling oil pump**—The cooling oil pump delivers oil to the bearings of the gas turbine after the latter has been shut down so as to remove the heat which they receive from the still

**Blowers for cooling traction motors**—There are two electrically-driven blowers each serving the two motors in one bogie. The blower sets are located in the machine room and are connected by means of ducts and leather bellows to the traction motor cooling air branches.

**Motor-driven compressor-exhauster set**—Vacuum for the train brake system and compressed air for the locomotive brake system and pneumatic controls is produced by a belt-driven exhauster-compressor set. An electrically-driven set is specially provided to supply compressed air when the gas turbine set is shut down and the locomotive running light on the diesel set, and to boost the production of vacuum for quick release of the vacuum brakes on the train. For this latter purpose it is switched in automatically when the driver places the brake valve in the release position.

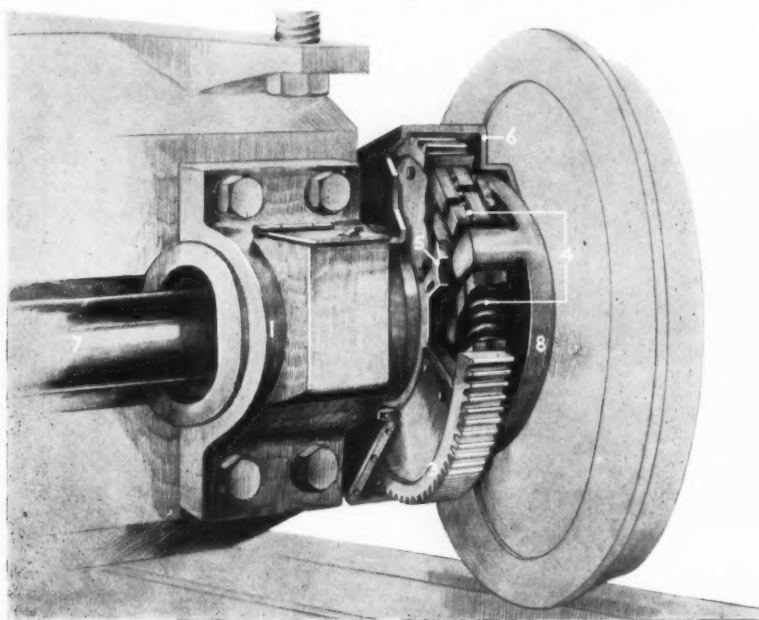
**Train heating plant**—For the train heating requirements the locomotive carries a Clarkson thimble tube boiler of 1,000 lb./hr. steam capacity. The boiler is fired with light fuel oil and incorporates two electric motors, for the feed water pump and the burner set respectively.

#### Operation and Control

All operations for the starting, stopping, and control of the gas turbine power unit, the diesel generator set, and the auxiliaries are remotely carried out from the cabs. All controller handles, push buttons, and supervising instruments are grouped on the driver's desk. They are laid out for one-man operation although, in accordance with British Railways established practice, the locomotive will carry a crew of two.

The first thing the driver will do in boarding the locomotive is to start the auxiliary diesel generator set by pressing a push button. This connects the storage battery to the auxiliary generator which then motors the diesel up to ignition speed. The driver can now switch the auxiliary generator on to the traction motors and in this manner shunt the locomotive at speeds up to about 15 m.p.h. This practice has proved to be very valuable and economical in service because it provides the locomotive with an alternative source of power and makes it unnecessary to run the gas-turbine unit for light service requirements.

A few minutes before the train is due to leave, the driver proceeds to start the gas-turbine set. This is done by connecting the auxiliary generator to the main generator, which, running as a motor, accelerates the gas-turbine unit. Meanwhile the fuel pumps have been started, and when the ignition speed is reached the burner nozzle is opened and the light fuel ignited. The thermal unit now accelerates further under its own power, and the diesel generator can be disconnected and switched over to supply the auxiliaries. As stated, starting is normally effected on light fuel oil, but after a few minutes the heavy fuel oil will have been sufficiently pre-



1. Quill stump secured to motor housing 3. Big gearwheel 4. Transmission springs  
5. Gearwheel flange lip 6. Gear case 7. Driving axle 8. Carrier disc

#### Cross-section view of the axle drive

rotor. The brush gear can be rotated. The auxiliary generator is a multipolar machine with counter-compound and starting winding. It has one bearing shield situated at the commutator end. The frame is bolted to the diesel engine so as to form one unit.

The rating of the auxiliary generator is as follows:—

Continuous rating : 40 kW, at 100 V., 1,150 r.p.m.  
Max. working speed : 1,500 r.p.m.

**The storage battery**—Due to the use of the auxiliary diesel-driven generator both for starting the gas turbine and supplying the auxiliaries, the storage battery can be kept comparatively small. It serves to start the diesel set and to supply those control and auxiliary circuits which are to be operated without the diesel set running. The Alkum type cadmium-nickel battery consists of 54 cells with a capacity of 200 amp. hr.

The following auxiliaries are fed from the auxiliary generator or the battery respectively.

**Voltage converter set**—The object of

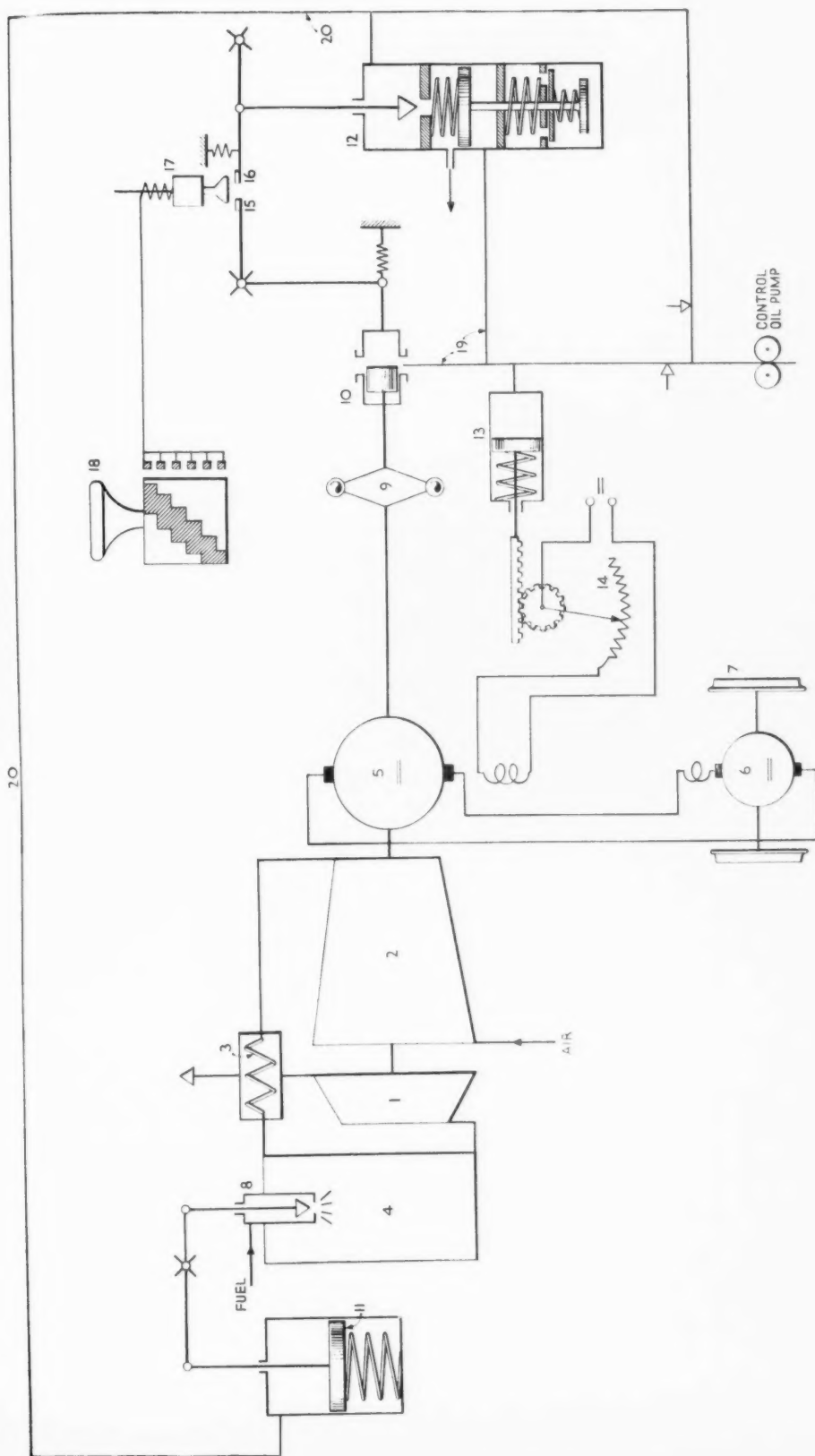
hot turbine. The cooling oil set is automatically started on stopping of the gas turbine and stopped by a time switch after sufficient time has elapsed for the gas turbine to cool down.

**Pumps for light and heavy fuel oil**—These pumps deliver the fuel to the combustion chamber under sufficient pressure for it to be pulverised at the burner nozzle for combustion. The light oil is used in the turbine during the starting-up period only, until the heavy oil, which is the normal fuel, is sufficiently preheated.

**Ignition rod control**—The ignition rod is moved in and out of the combustion chamber by a small electric motor controlled from the driver's desk.

**Automatic barring gear**—The object of this gear is to turn the shaft of the gas turbine through 180 deg. at intervals after it has been shut down, so as to avoid a temporary deflection of the shaft whilst it is hot. The barring gear motor is automatically controlled by a time switch.





*Simplified governing diagram*

heated, so that the changeover can be effected.

The driver controls the starting of the train and its subsequent speed through the handwheel of the main controller which acts on the governing system of the locomotive. Each notch of the main controller corresponds to a certain power of the gas turbine unit, this power being determined by turbine speed and fuel quantity. A simplified diagram of the governing system is shown on page 513.

On each notch of the controller 18 an electro-pneumatic valve 17 is actuated which sets the speed of the turbine and the corresponding rate of fuel delivery through the levers 15 and 16, respectively. Lever 16 actuates the pilot valve 12, thus setting the pressure in the control oil system 20, which

governor 9 and 10 regulates the pressure of the oil in system 19 to such a low value that the driving piston of the servo field regulator 13 is moved by the pressure of the spring into its right-hand end position so that the resistance 14 is short-circuited and the excitation of the generator brought to its maximum value. As the train gains speed the power demand from the traction motors diminishes. The effect is a tendency of the power unit to raise its speed still further. This is, however, prevented by a reduction in the rate of fuel delivery since, on further increase in the speed of the power unit, falling of the oil pressure in system 19 influences the pilot valve 12.

On the higher notches of the controller, which correspond to the normal

would again start to fall off rapidly, as the servo field regulator can have no further influence. In this case the increase of control oil pressure in system 19 restricts the flow from the pilot valve 12 and thus brings about a limited increase in the rate of fuel delivery. Similarly the reverse takes place when the power demanded by the traction motors diminishes.

The above explains the working of the servo field regulator and its influence on the governing system of the locomotive when the main controller is left in a certain position. If the driver wishes to influence the speed of the locomotive by his own action he need only move the control wheel to a new position. This energises a different electro-pneumatic valve and thus alters the power available.

It might be interesting to follow the action of the governing system in such a case and to see how it shortens the time which the power unit requires to attain the new output value. When "notching up," the speed of the power unit temporarily lags behind the value corresponding to the new setting of the speed governor sleeve 10 because of the inertia of the rotating masses. This will increase the pressure in system 19, thus reducing the excitation current of the generator and, through the action on pilot valve 12, temporarily increasing the rate of fuel delivery above the rate set by the controller. As a result of this simultaneous reduction in electric load and increase in fuel supply the power unit will accelerate very quickly to the new speed. When this is reached the oil pressure in system 19 will fall again and reduce the fuel delivery to the normal rate corresponding to the new controller notch. The piston of the servo field regulator will move and load the generator by increasing the excitation current, which completes the regulation cycle.

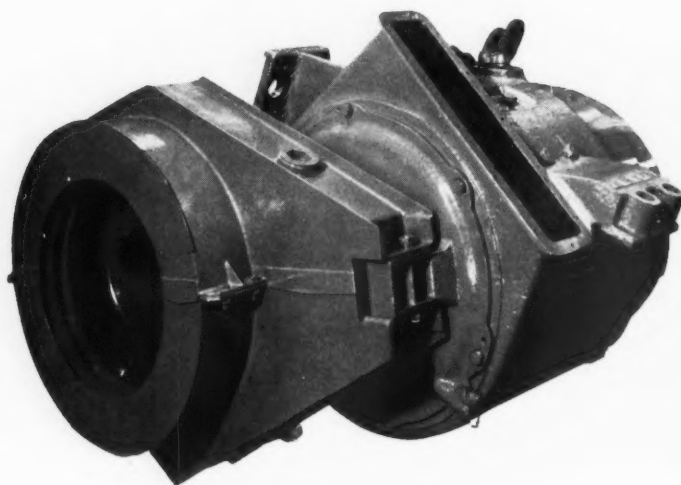
When the controller is "notched down" the same cycle occurs with the settings in the opposite direction, the servo field regulator again assisting the power unit in attaining the new output value in the shortest possible time.

On the two last notches of the controller there is no further power increase; instead, the traction motor field is weakened so as to bring about the highest locomotive speeds.

#### Safety Devices

Incorporated in the control system are a number of safety devices. Service safety is obtained by a number of electrical and mechanical interlocks between the controls to prevent faulty operation. Pilot lamps or instruments on the driver's desk indicate the proper working of all the components, whilst warning lamps light up should excessive temperatures occur in the gas flow.

If, notwithstanding such warning, the driver omits to reduce the load, the fuel pump is automatically shut down, thus compelling the driver to re-ignite the flame. The fuel pump is also automatically shut down if the



*One of the four traction motors*

determines the position of piston 11. This latter sets the opening of the nozzle 8 and thus regulates the rate of delivery of fuel. At the same time lever 15 sets the speed of the gas turbine unit by moving the sleeve of the speed governor 10.

The natural characteristic of the series traction motors is such that these motors do not transmit the same power at all speeds. The governing system must allow for this fact, and it does so by means of the servo-field regulator developed by Brown Boveri especially for thermo-electric vehicles. In a state of equilibrium, that is, when the locomotive is running at constant speed and tractive effort, the power developed by the power unit corresponds to the output of the generator, the turbine speed remains the same, and the regulation system is not brought into operation.

On the lower notches of the controller, which are used for starting the train, the rate of delivery of fuel is so high that the turbine speed somewhat exceeds the normal value. The speed

range of the locomotive, the traction motors might impose more load on the generator than corresponds to the actual notch position. The servo field regulator now limits the load imposed on the generator by regulating the excitation current. This takes place in the following manner: if, on change of gradient, the traction motors begin to demand more power than that corresponding to the controller position, then the power unit will tend to slow down.

The speed governor 10 now causes the oil pressure in system 19 to rise, so that the piston of the servo field regulator begins to move to the left, thus reducing the excitation current by increasing the resistance 14. The result is that the output of the generator is limited; at the same time the reduction in turbine speeds is corrected and thus a new state of equilibrium reached.

When the piston arrives on its left-hand end position and the current demand from the motors has not yet been fully met, the turbine speed

speed of the gas turbine set exceeds the normal value by more than 10 per cent., or if the flame in the combustion chamber should go out without the driver noticing it. This latter security measure is controlled by an electronic flame monitoring device and prevents fuel from flowing into the combustion chamber without being burnt. Finally, the locomotive is equipped with the automatic train control apparatus which is standard on the Western Region. The shoe portion of the ATC apparatus is carried by one of the carrying axles of the locomotive.

The cab equipment comprises the driver's desk with the controls and instruments mentioned earlier. The driver's seat is on the right-hand side. In normal train service the driver need only operate the main control hand wheel and, when necessary, the brake

handle. He checks the generator load on the special cross pointer instrument developed by Brown Boveri for thermo-electric locomotives. This instrument indicates simultaneously the generator current and voltage and the locomotive's tractive effort, and, further, shows the driver the appropriate moment for weakening the traction motor fields by field tapping. It does away with the inaccuracies inherent in d.c. wattmeters, particularly for wide variations in voltage and current as they occur in thermo-electric vehicles. The locomotive speed is indicated on an electric tachometer, the generator of which is driven from one of the driving axles.

The cabs are provided with indirect lighting and, in addition, the main instruments are fitted with individual lighting, thus permitting the cab

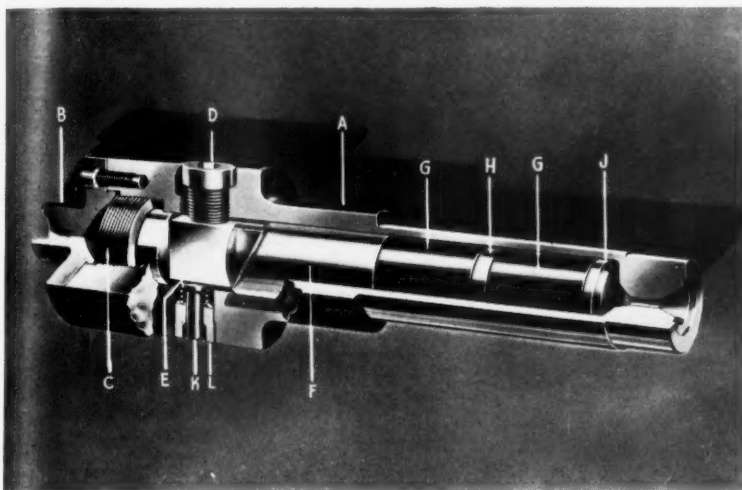
illumination to be switched off during night runs. When in the depot a supply of lighting current on the locomotive is provided from the depot mains supply through two standard plugs, a single-phase transformer, and a changeover switch mounted on the locomotive.

Whilst the train heating is by steam from the Clarkson boiler, the locomotive cabs are equipped with adjustable electric heat supplied from the auxiliary generator. There is also a plug for the connection of a hotplate or tea kettle. The cab windows have electrically heated double panels to prevent freezing.

The electric identification lights at the front and rear of the locomotive are operated from, and repeated on, special panels placed in each of the driver's cabs.

## An Expanding Mandrel

*Incompressibility of rubber as the basic principle*



**A**N expanding mandrel, known as the Herbert-Bristol, in which the expanding medium is commercial rubber, has been introduced by the Bristol Aeroplane Co. Ltd., who have appointed Alfred Herbert Limited, Coventry, sole licensees for the manufacture and sale of machine shop tools covered by the patents. Designs are based on the fact that rubber is incompressible, and research into a practical method in applying this principle

to machine shop equipment has been extended to expanding mandrels, by means of which it is possible to ensure a degree of accuracy not possible with tapered mandrels.

The thrust exerted on the rubber is transmitted to the expanding portion of the tool. With such tools, the degree

of expansion is always within the elastic limit of the material and, therefore, retraction to the original dimension when the thrust is relieved is assured. Among the advantages claimed by the use of equipment based on this principle is extended service life and reduction in production times, since the mandrel allows for the slightest variations in the bore of work, and no wear takes place. Sleeves, fitted to the mandrel, accommodate up to  $\frac{1}{8}$  in. above its nominal diameter.

The mandrel is operated by the screw (d) which actuates wedge (e) and transmits pressure to the rubber plugs (g), the thrust being taken by the screwed plug (c). When the screw (d) is released the wedge is returned by the spring loaded plunger (k) which is retained by the screwed plug (l), and the mandrel contracts to its original diameter. Access to the components is obtained by removal of end cap (b). The maximum recommended expansion is .002 in.; over-expansion is prevented by screw (d), the head coming in contact with a shoulder. The mandrel is supplied to the following sizes; special sizes, can, however, be supplied on demand.

Nominal diameter	1 in.	1 1/4 in.	1 1/2 in.	1 3/4 in.	2 in.	2 1/4 in.
Range of additional sizes held by using sleeves ...	1 1/8 in. to 1 7/8 in.	1 1/2 in. to 1 5/8 in.	1 3/4 in. to 1 7/8 in.	1 7/8 in. to 2 1/8 in.	2 1/8 in. to 2 3/8 in.	2 3/8 in. to 2 7/8 in.
Length capacity ...	3 1/2 in.	3 3/4 in.	4 1/2 in.	5 1/2 in.	5 3/4 in.	6 1/2 in.

**INCREASE IN OFF-SEASON TOURIST TRAFFIC TO BRITAIN.**—The British Travel & Holidays Association announces a big increase in off-season tourist traffic, particularly in American visitors in the early months of this year. During March some 9,000 visitors arrived from U.S.A., an increase of 70 per cent. on March, 1949; more than half came by air, and it seems that reduced off-season transatlantic air fares are helping to attract visitors outside peak holiday months. The total of visitors from

all countries in March was 23,395, 24 per cent. higher than in March last year. There was a substantial increase also in arrivals from Central and South America and from Western Europe.

**ROAD HAULAGE ASSOCIATION REPORT.**—The view of the Road Haulage Association that trade and industry are best served by road transport operated by private enterprise remains unchanged, according to the annual report of the national council. Un-

less the Government of the day could be persuaded otherwise, then nationalisation would continue, and free hauliers would have to adapt themselves. There is now a membership of 19,000 and the report states that 2,000 road haulage firms have been nationalised. Something like 40,000 vehicles will eventually be acquired. The B.T.C. had not, states the report, speeded up payment of compensation to the same extent, and the R.H.A. had made frequent representations regarding this.



## Renewal of Wiske Moor Water Troughs

*British Railways, North Eastern Region, have recently replaced the old slow-filling troughs by a quick-filling installation*

AT the beginning of the century the North Eastern Railway laid down 620-yd. water troughs on its up and down main lines at Wiske Moor, about two miles north of Northallerton. Until recent months this installation has remained substantially unaltered, except that valves of a new type were fitted in 1920. On the whole the installation functioned satisfactorily, but had certain defects which were emphasised in the course of time by increasing traffic.

creted in, so that track repairs at those points were extremely difficult. Also, constant flooding had waterlogged the ballast and made it very dirty and inefficient.

As present-day traffic on this important Anglo-Scottish route entails a minimum headway between trains of two to three min. and, so as to eliminate the drawbacks of the old installation, it was decided to modernise the equipment.

To ensure rapid replenishment, feed

In the position shown in the diagram—with the trough full—the automatic control valve is kept closed by the pressure of the water in the upper part of the cylinder acting downwards on the piston, but when water is taken from the trough by a passing train, the water level falls sympathetically in the control tank and the ball valve opens. This releases the water pressure on the upper side of the piston, which is pushed upwards by the water pressure on its underside, and the valve is opened, supplying water direct from the tank to the trough. Water then flows back from the trough into the smaller compartment of the control tank until it spills over the weir into the float compartment where it raises the float and closes the ball valve.

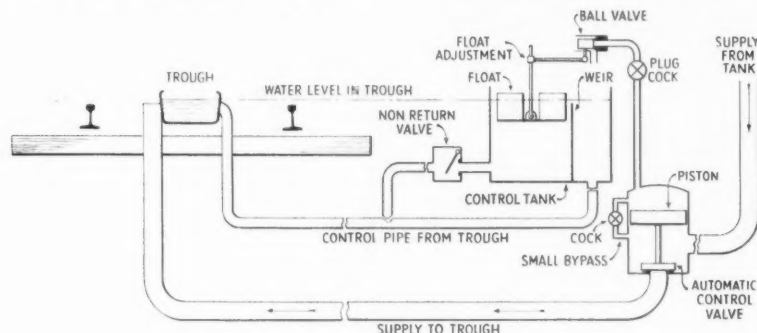
With the ball valve closed, the water which leaks through the small by-pass builds up the pressure on the upper side of the piston and forces it downwards to close the valve and shut off the supply to the trough. All is then ready for another cycle of operation.

The ball-valve is of the normal type, but is designed with a short lever arm and a large float to obtain quick operation, while the position of the float is adjustable vertically to permit easy regulation of the water level.

### Cutting Off Supply

Adjacent to the ball-valve is a plug cock which, when closed, not only permits cleaning and maintenance of that valve, but also retains the water pressure above the piston, and thus provides a quick and easy means of cutting off the supply to the troughs without the need for operating large valves on the main pipe lines.

All feed and control pipes are rigidly connected to the troughs; but are interrupted a short distance away and are connected to the buried pipes from the tanks by short lengths of heavy rubberised canvas hose of the same dia. By

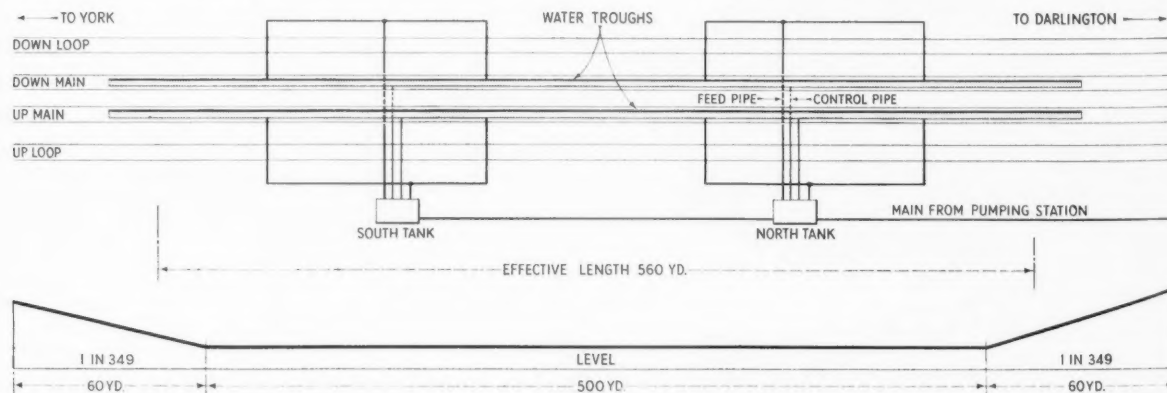


Water-feed control valve and tank, and ball valve

The time taken for one trough to fill up, after a train had emptied it, was 10 min., and for the two troughs together 15 min. The automatic control valves were placed above the level of the troughs, with the result that, if the tanks were allowed to run dry, air locks developed. Moreover, the troughs were fed with water from the bottom, and, unless the valves were throttled down, the water gushed up like a fountain and spilled over. Another source of water wastage was the design of the troughs, which had out-turned side lips, encouraging a heavy loss by splashing when engines were taking water.

Other shortcomings were that the feed-points and levelling pipes were con-

points are now located at four points in each trough distributed at  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and  $\frac{1}{4}$  of the total trough-length. This makes possible a reduction in the rate of flow at each feed, though the filling time is now only two min. Two valves control the supply to each trough, one valve controlling two feeds. The feeds are arranged at the sides of the troughs and are flared so as to admit the water horizontally in both directions through gratings. The valves are now below the level of the troughs to prevent air-locks, and special float-control valves are provided to allow of the rapid opening and closing of the main valves. The control valve layout is shown in the accompanying diagram.



General arrangement of troughs and feeds, with track gradients

this means the various pipe lines are insulated as far as possible from the vibration of the track and the risk of leaks due to strained pipe joints is avoided.

As will be seen from the diagram and other illustrations, the type of trough now installed has turned-in lips to reduce splash.

#### Formation Improvements

The opportunity was also taken to replace the old bull-head track with new standard 109-lb. flat-bottom rails and fastenings, and to excavate some 3,500 cu. yd. of dirty ballast down to a depth of 18 in., and replace it with clean ballast. This work was carried out with an excavator and bulldozer.

The new 20-ft. lengths of trough were welded into 60-ft. lengths and laid with 60-ft. lengths of prefabricated track by crane. The 60-ft. trough-lengths were then welded up to form a continuous channel 620 yd. long. Meanwhile, the entire drainage system was realigned and regraded and the 65 old sleeper manholes were replaced in brick.

The supply of water comes from the River Wiske, about a mile away, and is delivered by diesel-driven pumps to two storage tanks each with a capacity of 27,000 gal. and situated 200 yd. apart on the up side of the line. The general arrangement of the troughs, tanks and feeds is the subject of another diagram, which also shows the track gradients



*Laying a 60-ft. length of pre-fabricated flat-bottom track with new water-trough fitted. Note the turned-in lips of the trough*

enabling the scoop on a tender to dip into the trough. The quantity of water that can be taken from one of these troughs when a locomotive is passing over it at a minimum speed of 20 m.p.h. is 3,500 gal.



*Two-way horizontal feed to water-trough. The feed-pipe, a new brick manhole, and dished concrete slab paving can also be seen*

## The Rimutaka Deviation

*A five-mile tunnel being constructed to replace rack-operated section in North Island, New Zealand*

**T**ENDERS are being called in the United Kingdom, Canada, Australia, South Africa, and New Zealand for the building of the Rimutaka Tunnel, cutting out the famous incline on the Wellington to East Coast line of the New Zealand Railways. The tenders will be called in New Zealand alone on a "labour only" basis.

The aim is to complete the tunnel as soon as possible, to save expenditure on equipment now used on the section

The difficulties and delays of operating over such a section with increasing traffic led to the investigation of alternative routes from time to time from 1900 onwards. Some relief was given in 1907 with the incorporation in the Government system of the coast route from Wellington to Longburn constructed and until then operated by the Manawatu Railway Company. This enabled the diversion of tonnage to Wellington from the north away from the Incline.

dient on the deviation is 1 in 70 and the sharpest curves are 20 ch. radius. Eventually, completion of duplication and electrification of the Wellington to Upper Hutt section is to be carried on over the deviation to Featherston. It is hoped to be ready with electrification immediately the tunnel is open. The completion of the route will reduce the time from Wellington to Masterton, the centre of the Wairarapa, by railcar by 45 min. and by passenger train by 1½ hr.



*Passenger train hauled and banked by Fell locomotives at the beginning of the ascent of the 1-in-15 rack-operated Rimutaka Incline, North Island, New Zealand*

which is nearing the end of its useful life and would require a considerable sum to renew.

The present route to the Wairarapa out of Wellington follows the Hutt Valley for 20 miles to Upper Hutt, thence over the Rimutaka ranges, following a circuitous route 24 miles long with steep gradients and sharp curvature. The section includes the Rimutaka Incline with 2½ miles at 1 in 15, operated on the Fell system, and much of the remainder is graded 1 in 35 and 1 in 40. This section was completed in 1878.

A situation has now arisen where, apart from the necessity for providing for reasonably fast and economical communication with the Wairarapa, the provision for direct routing of tonnage between Wellington and the East Coast districts will be of increasing importance and value.

The new project involves the construction of 14 miles of single-track line, including an aggregate length of tunnelling of about 5½ miles. The main tunnel is to be 5 miles 30 ch. long, or 4 ch. longer than the Otira. The ruling gra-

Approach roads for the assembly of plant and supplies are formed; and the deep cutting to, and the western portal, are completed. The Wellington side of the tunnel has been completed for a distance of 7 ch. A special town to house 500 persons, including the engineers, tunnellers, outside workers and their families, is being built, and associated works are beginning. The heavy plant has still to be delivered and assembled. On the Featherston side, a diversion tunnel has been built to carry away the Owahango stream.



## RAILWAY NEWS SECTION

## PERSONAL

Mr. J. B. Mavor has been elected Chairman of the North British Locomotive Co. Ltd., in succession to the late Sir Frederick Stewart.

Mr. W. A. Mather, President of the Canadian Pacific Railway Company, was appointed a Director of the Bank of Montreal on April 25.

We regret to record the death on May 1, of Major R. F. Morkill, M.C., until recently Technical Officer, Railways, Inspecting Staff, Ministry of Transport, and at one time Joint Signal Engineer, London Transport.

Sir George Nelson, Chairman & Managing Director of The English Electric Co. Ltd., has been elected President of the British Electrical & Allied Manufacturers' Association. He has served as a member of the Council of the B.E.A.M.A. since 1932, was its Chairman in 1947 and 1948, and was a Vice-President for 14 years.

Mr. J. H. Collier-Wright, Assistant Superintendent (Operating), East African Railways & Harbours, is at present on leave in Great Britain, until about the middle of this month, when he leaves for Canada. He expects to come back to England in September, and to return to Nairobi in October.

Mr. E. J. Batchelor, who for some years has been Assistant Managing Director of Brush Coachwork Limited, has now been appointed Managing Director of that Company.

Mr. Perry T. Egbert has been appointed to the Board of Directors of the Montreal Locomotive Works Limited, to serve the unexpired term of Mr. Robert B. McColl, who retired in January.

Mr. F. W. Kendrick, recently Acting Sales Manager for tyres in South Africa, Dunlop Rubber Co. Ltd., has been appointed Dunlop tyre Export Manager in London.

Mr. D. S. Bennett, Managing Director, Tyer & Co. Ltd., is leaving England on May 12 on a visit to Zurich, Egypt, Sudan, East Africa, Portuguese East Africa, Kenya, Union of South Africa, Rhodesia and Nyasaland. He expects to return to this country at the end of June.

A bronze plaque of the head of the late Lord Ashfield, who was a Member of the British Transport Commission and previously Chairman, London Passenger Transport Board, is to be unveiled on the east end of the wall of the London Transport building at 55, Broadway, Westminster, on May 16. The plaque, which will be unveiled by Mr. Alfred Barnes, Minister of Transport, will be inscribed: "Lord Ashfield, P.C., 1874-1948. Creator of London Transport."

Mr. William Douglas Lorimer, who has been elected to succeed Mr. H. Wilmot as President of the Locomotive Manufacturers' Association, is Joint Managing Director of the North British Locomotive Co. Ltd. Mr. Lorimer, who is 44 years of age, was educated at Rossall School, and at Queens' College, Cambridge. He is the only son of Mr. William Lorimer, Chairman of the North British Locomotive Co. Ltd. from 1935 to 1946, and is a grandson



Mr. W. Douglas Lorimer  
Elected President of the Locomotive  
Manufacturers' Association

of the late Sir William Lorimer, who was Chairman of that company from its formation in 1903 until his death in 1922. Mr. Douglas Lorimer, his father and his grandfather form an unbroken link of family service with the company since 1864, when the constituent firm of Dübs & Company was founded. Mr. Lorimer's election as President of the Locomotive Manufacturers' Association marks the first time that two members of the same family have held that position, Sir William Lorimer having been President from 1900 to 1922.

At the annual general meeting of the Locomotive Manufacturers' Association on April 27, Mr. H. Wilmot, C.B.E., retired from the Presidency of the Association, having held office for three years, the maximum period permissible under the L.M.A. constitution. At a dinner held at the Dorchester Hotel, W.1, after the meeting, a presentation was made to Mr. Wilmot of an antique silver salver inscribed with facsimile signatures of his

colleagues of the L.M.A. Those present at the dinner, in addition to Mr. W. D. Lorimer, President, L.M.A., and Mr. H. Wilmot (Beyer, Peacock), retiring President, L.M.A., were Messrs. J. F. Alcock (Hunslet Engine), H. Kewney (Andrew Barclay), W. T. Peckett (Peckett & Sons), J. Hadfield (Beyer, Peacock), Major-General G. S. Szlumper (North British Locomotive), Messrs. J. N. Compton (Yorkshire Engine), G. W. C. Birdsell (Hudswell, Clarke), Gerald Collingwood (Vulcan Foundry), D. W. Hadfield (Robert Stephenson & Hawthorns), R. W. Challenor (North British Locomotive), H. Davies (W. G. Bagnall), L. T. Dawes (Beyer, Peacock), A. C. Fryers (Hunslet Engine), H. D. Thoms (North British Locomotive), H. Dods-worth (Robert Stephenson & Hawthorns), K. C. Banks (Yorkshire Engine), W. A. Smyth (W. G. Bagnall), A. C. Lermitt (Vulcan Foundry), W. Cyril Williams (Beyer, Peacock), J. W. Vaughan (Director, L.M.A.).

Mr. G. P. Barnett, Recruitment, Training & Education Officer, London Transport Executive, has retired.

Mr. D. H. Minett has been appointed a Member of the Board of Directors of the Lamp Manufacturing & Railway Supplies Limited.

Mr. Charles Holt, Deputy General Manager of Thos. Cook & Son Limited, has again been elected Chairman of the Creative Tourist Agents' Conference.

Dr. A. G. Quarrell, Research Manager to the British Non-Ferrous Metals Research Association, has been appointed Head of the Post-Graduate School of Physical Metallurgy recently established by Sheffield University.

We regret to record the death, at the age of 71 years, of Mr.

A. W. Harty, M.I.C.E., a former Chief Mechanical Engineer of the Great Southern Railways, Ireland. Mr. Harty, in October, 1894, became apprenticed in Cork, but completed his apprenticeship at Inchicore under Mr. H. A. Ivatt, then Locomotive Engineer, Great Southern & Western Railway. He was appointed Locomotive Works Manager at Limerick in March, 1904, and was promoted to be District Locomotive Superintendent at Waterford some four years later. In November, 1911, he was transferred to Limerick in a similar capacity, and in December, 1916, became Chief District Superintendent of the Limerick and Waterford Districts. On the amalgamation of the Great Southern & Western and the Midland Great Western railways in 1925 Mr. Harty was selected for the position of Running Superintendent of the newly formed Great Southern Railways, and in May, 1932, he was promoted to be Chief Mechanical Engineer, which position he held until his retirement from the railway in March, 1936.



*Mr. A. A. Vilas*

Appointed Chief of Way & Works Department  
General San Martín Railway

Mr. Armando Angel Vilas, who was recently appointed Chief of the Way & Works Department of the General San Martín (former Buenos Ayres & Pacific) Railway, was born in Chascomus, Province of Buenos Aires, in 1910. After finishing his education at the Otto Krause Industrial School, he joined the Way & Works Department of the Argentine State Railways in 1929. He continued his studies, first at the Superior Technical Institute of the Otto Krause School, and later at the Faculty of Physical & Mathematical Sciences of La Plata University, where he graduated as a Civil Engineer in 1943. In 1944 he became Technical Assistant, and, in August of the same year, Sectional Engineer at La Rioja; and he was transferred to Mendoza in 1948 to organise the new section corresponding to the Transandine Railway.

Mr. V. N. Limaye, Special Engineer, Central Coach Building Workshops, State Transport, Bombay, recently arrived in England to study passenger transport, particularly coach building, in the United Kingdom. He is making his headquarters with Metal Sections Limited, Oldbury, Birmingham.

Coventry Climax Engines Limited announces three appointments to the board:—Mr. Percy W. Cooper, Secretary, to be Director & Secretary; Mr. Charles A. Minns, Works Manager, to be Works Director; and Mr. John M. Morris, General Sales Manager, to be Sales Director. Mr. Minns is succeeded as Works Manager by Mr. Frank Cotton.

Mr. Juan Bautista Murguizur, who was recently appointed Chief of the Traffic Department of the General Roca (former Buenos Ayres Great Southern) Railway, was born in 1894, and entered the service of the Buenos Ayres Great Southern Railway as learner at the age of 12. After several years of station work, he was made Chief of the Town Office at Mar del Plata in 1913, and became Chief of Train Control, Sevigne, three years later. He was transferred to the Movement Office at Plaza Constitución in 1920, and became Chief of Train Control



*Mr. J. B. Murguizur*

Appointed Chief of Traffic Department,  
General Roca Railway

& Movement later in the same year. In 1937 he was appointed Sub-Assistant (Out-door) to the Operating Superintendent, whose secretary he became in 1944. He has lately served as Secretary to the Traffic Manager.

Mr. B. G. Crewe, Assistant Controller of the Board of Trade Patent Office, retired at the end of April after nearly 50 years' continuous service.

Mr. Frank F. Fowler has been appointed National Chairman of the Road Haulage Association for the ensuing year, and Messrs. R. G. Crowther, R. H. Farmer, J. Strang and B. Winterbottom have been appointed Vice-Chairmen. Messrs. F. F. Fowler, J. Strang and B. Winterbottom held office as Vice-Chairmen during the past year.

Dr. P. A. B. Raffle has been appointed a Senior Assistant Medical Officer, London Transport Executive. Dr. Raffle, who is 31 years of age and holds the qualifications M.D., D.P.H. (London), Diploma in Industrial Health, joined London Transport in 1948. Dr. Raffle will, under the control of the Chief Medical Officer, specialise on environmental working conditions, prevention of industrial disease, general hygiene matters and other similar problems.

Mr. Claudio Juan Trivi, who was recently appointed Chief of the Electrical Department of the General Mitre (former Central Argentine) Railway, was born in 1915, and completed his education at the University of La Plata, where he obtained his diploma as Mechanical and Electrical Engineer. In 1940 he joined an engineering firm, and two years later accepted a position with the Province of Buenos Aires Railway as Assistant Material & Traction Engineer in charge of locomotive sheds and staff, water service, technical office and workshops. He afterwards served for a short period with the firm of Le Carbone Lorraine as consulting engineer, and then joined the Central Argentine Railway in 1947 as Technical Assistant to the Operating Superintendent, for both electric and diesel services. On the reorganisation of the Electrical



*Mr. C. J. Trivi*

Appointed Chief of Electrical Department,  
General Mitre Railway

Department he was attached to the office of the Chief of the department, and was concerned with all power house, sub-station and workshop questions.

Mr. R. N. H. Williams has been appointed a Director of the Red & White United Transport Co. Ltd.

Mr. F. J. Clark has been appointed to the Board of the British Oxygen Co. Ltd. as a Managing Director.

Mr. F. M. G. Wheeler, B.Sc., A.M.I.Mech.E., M.I.Loco.E., has been appointed Head of British Timken Limited Railway Sales Division.

British Railways, Eastern Region, announces that Mr. R. R. M. Barr has been appointed Assistant Marine Superintendent, Parkston Quay, in succession to Mr. G. M. Leach.

Mr. R. W. Stuart Mitchell, M.Sc., A.M.I.C.E., A.M.I.Mech.E., has been appointed Chief Development Engineer in The English Electric Co. Ltd., Diesel Engine Division, with headquarters at Rugby.

Mr. Gerald Hiam has been appointed General Freight Traffic Manager, Canadian Pacific Railway. Mr. Hiam joined the company in 1904 and since 1948 has been in charge of sales and service.

Mr. J. L. M. Ledesma, Chief of the Stores Department of the General Mitre (former Central Argentine) Railway, has been temporarily attached to the General Manager's Office, and during his absence Mr. E. E. Lindberg has been appointed Acting Chief of the department.

At a luncheon at the Café Royal, Regent Street, London, on Wednesday, March 29, held in connection with the Institute of Metals Annual General Meeting, Mr. H. S. Tasker, the President of the Institute, presented the 1950 Institute of Metals Medal in platinum to the French metallurgist Professor Albert Portevin, in recognition of his eminent services to the science and practice of non-ferrous metallurgy. The French Ambassador was present at this ceremony.

## Brush Electrical Engineering Co. Ltd.

*Continuance of improved results, with good prospects*

The sixty-first annual general meeting of The Brush Electrical Engineering Co. Ltd. was held in London on May 2, Sir Ronald W. Matthews, Chairman of the company, presiding.

The following is an extract from his statement circulated with the report and accounts:—

The accounts show a continuance of the improvement apparent for the past two years and, although earnings justify an increase in the rate of dividend, your directors, in conformity with the policy of restraint in the distribution of profits, recommend a dividend on the ordinary stock of 6 per cent., less tax, making 10 per cent., less tax, for the year, the same rate as for 1948. The group's activities can be conveniently grouped under four main headings, Brush, Mirrlees, McLaren, and Petters.

### Varied Activities

The Brush Electrical Engineering Co. Ltd., Loughborough: From 1946 to 1949 the rate of receipt of orders at the Loughborough factory has risen sharply, not by reason of an exceptional demand for any particular product but as a result of progressive balanced expansion in generating sets, electrical rotating machines, switchgear, transformers, steam turbines, and oil engines. To cope with the vastly increased output, the factory has been rearranged and laid out on the most up-to-date lines.

In my report to you last year I dealt at some length with the Ljungstrom turbine, which has been a prominent factor in our affairs over the last four years. During the year under review turbines at Sunderland, York, Lincoln, and Grimsby have been fitted with the new design of blading under the reconstruction programme.

Results so far give your board every reason to believe that the design of the new blading has overcome the troubles and difficulties which were experienced in the past. The company also manufacture bus bodies, deliveries of which have shown a threefold increase from 1946-49.

Mirrlees Bickerton & Day, Limited, Stockport: During the past year the factory has increased its production by nearly 50 per cent. and some 90 per cent. of the total output has been exported. The 1949 total is ten times the average yearly output for 1934-38. Sales for the year constitute a record, and steps have been taken to increase the output by a further 50 per cent. Two new ranges of heavy engines have been designed, which it is believed will be in advance of anything in the oil-engine field.

J. & H. McLaren Limited, Leeds: The remarkable rise in production which began in 1946 has been fully maintained, and we have a full order-book. The McLaren-Brush diesel-electric generating set, designed as an emergency plant to operate during power cuts, has been installed throughout the country and exported in large numbers.

Petters Limited, Staines: The production of the Petter engine is undertaken at two factories, the small diesel and petrol engines at Staines, and the larger SS engines at Loughborough. The factory at Staines is producing to the limit of its capacity. We are arranging distribution throughout America at prices competitive with American-produced engines.

It is hoped that by the middle of this year substantial orders will be forthcoming to offset the inevitable decline of orders from the sub-continent of India.

The maintenance of the order-book is a matter which is being given careful consideration at all times. Steps have been taken to strengthen the world-wide organisation which the company has set up to sell its products and it is believed that they will result in our obtaining a fair share of the business available. Sales companies have been formed recently in Canada, America, and Belgium, and arrangements for the formation of similar companies in South America, India, and the Far East are on the verge of completion. Your directors, therefore, feel confident that the several factories in the group will be adequately occupied for some years to come.

The report was adopted.

## Beyer Peacock & Co. Ltd.

*Annual general meeting*

The annual general meeting of Beyer Peacock & Co. Ltd. was held on May 2 at the Dorchester Hotel, Park Lane, London, W. Mr. Harold Wilmot, C.B.E., Chairman & Managing Director, presided.

The Secretary, Mr. L. T. Dawes, F.C.W.A., read the notice convening the meeting and the report of the auditors. The Chairman's review, which had been circulated with the report and accounts for the year ended December 31, 1949, was given in full in our April 14 issue. In it Mr. Wilmot reported a year's continued progress and gave details of the recently registered company, Metropolitan-Vickers-Beyer Peacock Limited.

The report and accounts were unanimously adopted and a dividend of 5 per cent. and a bonus of 1 per cent. on the ordinary shares were approved.

The retiring director, Captain Hugh Vivian, M.I.Mech.E., was re-elected and the remuneration of the auditors, Messrs. Price, Waterhouse & Company, having been fixed, the proceedings terminated with a vote of thanks to the Chairman, Directors, and staff.

## S.R. Debating Society Visit to York

On Friday and Saturday, April 14 and 15, a party of 56 members of the Southern Region Lecture & Debating Society visited York to take part in a debate with the North Eastern Region Federation of Railway Lecture & Debating Societies, and to view railway installations and other places of interest.

At the Railway Institute, on April 14, Federation speakers moved "That under any properly co-ordinated system the railways would cease to cater for passenger traffic for distances of less than 10 miles" and were opposed by the Southern Region speakers. Mr. F. L. Hick, Head of the Passenger Trains Section at York Headquarters, and Mr. C. A. Haygreen, Assistant District Commercial Superintendent, York, were the principal speakers for the Federation and Mr. D. W. M. Fox, Assistant Divisional Superintendent, London East Division, and Mr. J. R. W. Kirkby,

London Central Divisional Superintendent's Office, were the principal speakers against the motion. After discussion the motion was heavily defeated.

Mr. H. A. Short, Chief Regional Officer, North Eastern Region, was in the chair and there was an attendance of about 130 members of the two Societies. Mr. L. W. Ibbotson, District Operating Superintendent, Darlington, proposed a vote of thanks to the speakers and the Chairman, and Mr. R. A. Savill, Chairman of the Southern Region Society, thanked the North Eastern Region for the opportunity to visit York and extended an invitation to the Federation to pay a return visit to London.

On April 15 visits were made to York Station, where parties saw the new signal-box under construction and examined the layout of the station; parties also visited the Carriage & Wagon Works, Signal School, and Railway Museum.

## Staff & Labour Matters

### Trade Unions and the Budget

Members of the T.U.C. general council on April 27 asked their special economic committee to consider "wages policy in the light of existing circumstances, with special reference to considerations arising from the Budget." They also decided to seek a meeting with Sir Stafford Cripps before the next meeting of the general council.

Writing in the *Railway Review* of April 28, Mr. J. B. Figgins, General Secretary, N.U.R., states that "the Budget has given no real assistance to the trade union movement, and certainly none for the lower-paid workers, since the remission of income tax gives no benefit to married men with two children earning less than £7 per week. This throws the whole responsibility on the trade union movement to get increases commensurate with the increased cost of living."

**PUBLIC LIBRARIES TO PROVIDE HOLIDAY INFORMATION.**—A scheme for public libraries to provide information on holiday facilities has been launched by the British Travel & Holidays Association. More than 350 libraries in industrial areas are backing the scheme which is part of a national campaign to develop the holiday habit by providing workers with on-the-spot information on resorts. All they need do is to obtain from their local library the information they require to plan their holidays. Each library has been supplied with special publicity literature and British Railways are supplementing displays with their own publicity material.

**ROAD PASSENGER TRANSPORT SERVICES IN 1949.**—Buses and coaches operated by local authorities and other operators, excluding the London Transport Executive, made a total of 9,400 million passenger journeys in the year ended March, 1949, compared with 8,583 million in 1947-48, and 4,526 million in 1937-38. Increases are also reflected in vehicle mileage, which rose from 1,461 million in 1947-48 to 1,591 million, though the net receipts decreased as compared with the previous year. These figures, relating to operators owning more than five vehicles, are given in the summary of the annual reports of the Licensing Authorities for Public Service Vehicles for the Traffic Areas in Great Britain for the period April 1, 1948, to March 31, 1949, which is published by H.M. Stationery Office, price 1s.



## Parliamentary Notes

## Railway Freight Charges Increase

Minister of Transport implements Charges  
Consultative Committee's recommendations

Mr. Alfred Barnes (Minister of Transport), in the House of Commons on April 27, announced the decision on the application by the British Transport Commission for authority to make certain increases in charges. He stated that he had referred the matter for advice to the Permanent Members of the Transport Tribunal acting as a consultative committee, and that their advice was that he should authorise the Commission to make the additional charges. He attached the greatest importance to advice from such an experienced body, given after a full public inquiry. Nevertheless, in view of the importance of the matter, he had considered, with his colleagues, not only the committee's advice, but also wider aspects which could not be covered in a public inquiry.

The increases would come into operation on May 15. The amount involved in the freight increases was £27 million, which was one-half of one per cent. of the output of manufactures. Tentative estimates showed that the resulting increases in certain basic prices ranged from about 1½ to 2½ per cent. The effect on prices of food and clothing would not be significant. After the increase, railway freights overall would stand about 80 per cent. above the 1938 figure, an increase less than those in other basic prices.

The railways' costs, on the other hand, were about 125 per cent. above pre-war. Staff costs were nearly two-thirds of the total, and wages had doubled. Coal was costing the railways nearly three times pre-war, while the increase in supplies and services ranged from 80 per cent. for iron and steel to four-and-a-half times pre-war for timber, sleepers and crossings. The number of staff was 620,000, compared with 550,000 in 1938, an increase accounted for by the shorter working week, longer holidays, improved conditions, and the need to make up arrears of maintenance. In spite of some rise in costs during the last few years, overall expenditure had been kept practically steady.

While receipts from goods traffic had been steady, passenger receipts, on a comparable basis, had fallen since 1947 by £26 million, a substantial part of that being due to the falling-off in Government passenger traffic. The rise in the price of transport services was, therefore, much below the increase in costs compared with before the war. The improved efficiency which accounted for that achievement could best be seen in the increase in the number of ton-miles moved per engine-hour, from 461 in 1938 to 542 in 1948.

He was satisfied that there was no means of meeting the financial problem now facing the railways by any rapid and substantial further increases in efficiency. The economies to be achieved by integration of transport must represent a long-term matter. The principle embodied in the Transport Act was that the Commission should pay its way. The expedient of a subsidy could be justified, if at all, only if there were reasonable expectation that the Commission's budget might shortly be balanced on the basis of existing charges; that, he was satisfied, was not the case.

Mr. Anthony Eden (Warwick & Leamington—C.) asked the Leader of the House whether an early opportunity could be given for a debate on the subject.

Mr. Herbert Morrison (Lord President of the Council) pointed out that there had been a debate on transport recently, and he was not sure that a further debate was essential. This was a decision after a hearing by a judicial tribunal, and he was not going to attempt to say that, after the approval of a recommendation of a judicial tribunal by a Minister, Parliamentary debate must necessarily follow.

Sir David Maxwell Fyfe (Liverpool, West Derby—C.) said that, in view of the statement of the Minister that the amount of the increase was to be £27 million in a year, and that the progression of loss of the Transport Commission had been £5 million, £20 million and approximately £30 million, it was obvious that the £27 million would not fill the gap for this year and would do nothing to the back-log; and would he not consider even an informal inquiry, such as Sir Robert Burrows had held in regard to the National Coal Board, to consider whether his statement that there was no rapid and substantial economy to be made was the last word?

Mr. Barnes said that his statement did not refer to a permanent situation. They were dealing with a period in between or until the operation of the Commission's charges scheme. This application was not for the purpose of liquidating the whole of the losses which might occur between now and the end of 1952, but to avoid their becoming so substantial that they would seriously upset the consideration of any proper charges scheme.

Mr. Winston Churchill (Woodford—C.) asked the Lord President whether, as on May 15 a new tax of £27 million a year would be put on the public and on industry, there was any reason why the House should not have an opportunity in Government time of debating so heavy an additional charge on the life and activity of the nation?

Mr. Morrison said they were commercial concerns.

Mr. Churchill replied that they had been.

Mr. Morrison said that was ridiculously partisan. They really were commercial concerns.

After further discussion, Mr. Peter Roberts (Sheffield, Heeley—C.) asked leave to move the adjournment of the House for the purpose of discussing a matter of urgent public importance, namely "the proposed increases of rail charges."

The Speaker said that was not the right way to do it. If Mr. Roberts wanted to move the adjournment, he must bring the motion up to the table, so that he could see if it was in order or not.

## REASONS FOR THE INCREASE

The following is a statement made by the Minister of Transport of some of the facts which have led to his decision and which has been circulated in the Official Report:—

The increased powers of charge sought by the British Transport Commission were, in effect:—

**Railway Charges.**—A general increase of 16½ per cent. in the present charges applicable to freight train traffic and to parcels, other merchandise, and livestock by passenger train or other similar service.

**Canal Charges.**—A general increase of 16½ per cent. in present charges.

**Dock Charges.**—(a) Dues on coastwise vessels and cargoes—the present general increase of 25 per cent. over charges in force on August 31, 1939, to be raised to 50 per cent.; (b) all other rates, dues, and charges—the present general increase of 75 per cent. over charges in force on that date to be raised to 100 per cent.

The Permanent Members of the Transport Tribunal, acting as a Consultative Committee, held a public enquiry, lasting 13 days, at which they considered the representations made by the Commission and no less than 28 representative bodies covering a wide field of trade and industry and shipping.

In the reports, the Committee summarise the evidence and arguments, give their conclusions on the various issues, and recommend the making of regulations authorising the increases proposed subject to a small modification in regard to dock charges. This modification is that the benefit of the lower rate of increase in respect of coastwise vessels and cargoes should apply to traffic with the Irish Republic.

Over-all railway costs are approximately 125 per cent. over pre-war and are made up as follows:—

	Per cent.
Staff	62
Fuel and power	13
Supplies and services	21
Depreciation	4
Total	100

A large part of the costs is therefore staff. Weekly earnings have approximately doubled since 1938 as is shown from the following information given in the report for 1948. This information relates to all railways; the increase on British Railways has been rather greater than that on the railways of London Transport.

## WEEKLY EARNINGS

	1938	1948
	s. d.	s. d.
Clerical, supervisory, etc.	93 10	155 3
Conciliation staff	68 7	135 0
Shop and artisan staff	71 11	146 6

The cost to the railways of coal per ton in 1948 was 175 per cent. above pre-war and there have been further increases in 1949.

The Commission's report for 1948 also gives the following increases in the price of supplies and services:—

	Increase over pre-war Per cent.
Tyres (per car mile)	155
Timber, general	225
Timber, sleepers and crossings	344
Paints and colours	254
Oil, lubricating	215
Metals, non-ferrous	148
Iron and steel	80

In spite of increase in costs over the last year or two, and an improvement in passenger facilities, total expenses have kept practically steady. The figures are:—

	£ million
1948	311
1949 (estimate)	312
1950 (estimate)	314

Numbers of staff are about 620,000 compared with 550,000 in 1938. In justification there are four reasons:—(a) The 44-hour week; (b) increased holidays; (c) improved conditions; and (d) arrears of maintenance, etc., which have to be caught up.

Changes in total passenger and freight receipts are as follows:—

	£ million
1947 (actual, adjusted to reflect present level of charges)	349
1948 (actual)	336
1949 (estimate)	324
1950 (estimate)	319

Receipts from freight train traffic are fairly steady (£183-£182-£178-£180 million) and so are receipts from goods carried by

passenger train (£29 million each year). Receipts from passengers, however, show a sharp fall of £26 million in all (£133-£123-£114-£107 million).

Both fares and freights were increased in 1947, when the position was still obscured by abnormal Government (including Forces) traffic. It has been suggested that the fall in receipts since 1947 has been due to the increases then made. In fact, however, much of it appears to have been due to a falling off in Government traffic, the figures for which are:—

	£ million
1947 (broad estimate reflecting present level of charges) ...	54 (including passenger 23)
1948 (actual) ...	40 (including passenger 14)
1949 (estimate) ...	34 (including passenger 10)
1950 (estimate) ...	33 (including passenger 9)

The keeping of the rise in the price of transport services so much below the increase in costs compared with pre-war could not have been achieved except by improved efficiency.

The main statistics are:—

	Average train load (Tons)	Average wagon load (Tons)	Empty wagon miles Per cent.	Ton-miles moved per engine hour
1938 ...	125	5.55	33	461
1947 ...	159	6.42	27	516
1948 ...	156	6.48	27	542

The principal changes in the economics of transport since 1938 are summarised in paragraph 118 of the 1948 report of the Commission and, as far as they affect railways are as follow:—

(a) Weekly earnings per man are about double and prices of supplies and services are more than double.

(b) Hours of work are less.

(c) There are greatly improved ratios between train-mileages and hours on the one hand and ton-miles or passenger-miles carried on the other. (This is expressed in the very important statistics given above of the ton-miles moved per engine-hour.)

(d) These improved ratios are due on the freight side to the improvement in wagon capacity and loading, to the decrease in empty wagons hauled, to the longer hauls, to the bigger trains and decreased shunting, partially offset by a slight decrease of the rate of movement.

(e) On the passenger side, the improved ratios are due to a reduction in unremunerative services and to a much heavier loading of trains, offset by a slightly reduced rate of movement on certain services.

The process of integration of transport gives rise to many novel and difficult problems. It involves the procedure, laid down in the Act, of preparing Charges Schemes which must be approved by the Tribunal. It can only be done gradually and it must be a long-term process. It is not practicable at this stage to estimate the order of magnitude of the economies to which it will eventually lead.

**TANGANYIKA CONCESSIONS LIMITED: SALE OF BRITISH GOVERNMENT HOLDINGS.**—Replying in the House of Commons on April 27 to a question by Mr. G. R. Chetwynd, M.P. for Stockton-on-Tees, Sir Stafford Cripps said that the Treasury had authorised the Bank of England to sell to an Anglo-Belgian group 1,500,000 10s. ordinary shares in Tanganyika Concessions Limited held by the Bank on behalf of the Government. A condition of sale was that the purchasers would vote against any proposal to sell the interests of Tanganyika Concessions Limited in the Union Minière du Haut Katanga or in the Benguela Railway (except a sale of the latter to the Portuguese Government).

## Questions in Parliament

### Transport Commission Redemption Fund

Sir John Mellor (Sutton Coldfield—C.) on February 22 asked the Minister of Transport why he had amended S.R. & O., 1947, No. 2686, by S.I., 1949, No. 183; and whether there was any urgent need for this amendment.

Mr. Alfred Barnes stated in a written answer: The amendment enables the British Transport Commission in future to open one redemption fund account for all stock issued in any one calendar year to satisfy rights to compensation under the Transport Act, 1947, in lieu of separate redemption fund accounts for every such issue made during the year. It was desirable to make the amendment before the next issue of stock.

### Expenditure on Railways

Mr. F. J. Erroll (Altrincham & Sale—C.) on April 20 asked the Chancellor of the Exchequer why, in the Economic Survey for 1950, the total capital expenditure on railways had been placed on a different basis from that used in the Economic Survey for 1949, and now excluded the cost of permanent way repairs and maintenance; and why similar steps had not been taken to exclude from the capital expenditure on roads the cost of their maintenance as against improvement.

Mr. H. T. N. Gaiskell (Minister of State for Economic Affairs): The only expenditure excluded related to the examination and day-to-day repairs of the permanent way and rolling stock. Expenditure on work similar to the maintenance of roads is still treated as investment. The figures for capital outlay on roads were adjusted to this basis in the Economic Survey for 1949, when comparable day-to-day repair costs were omitted.

Mr. Erroll: Then why was the position not made clearer in the Survey itself?

Mr. Gaiskell: I think it is made perfectly clear in the footnote.

### Transport and Festival of Britain

Mr. B. Janner (Leicester, North West—Lab.) on April 24 asked the Minister of Transport if he had yet decided on the transport arrangements for the Festival of Britain; whether there was to be a shuttle bus service between the south bank of the Thames, the amusement section in Battersea Park and the science section at South Kensington; and what part was to be played by the Thames bus service.

Mr. Alfred Barnes: The detailed arrangements for rail and bus services for the Festival of Britain are being worked out by representatives of the Festival of Britain Office and the transport undertakings; the particular transport needs which Mr. Janner has mentioned will be borne in mind. An improved and co-ordinated service of "water-buses" will be provided from all piers between Greenwich and Hammersmith, as well as a shuttle service between the landing stages at the South Bank exhibition site and the festival gardens in Battersea Park.

### Railway Expenditure

Mr. F. J. Erroll (Altrincham & Sale—C.) on April 27 asked the Chancellor of the Exchequer what was the amount of expenditure on day-to-day repairs to the permanent way and rolling stock of the railways which had been excluded from the Economic Survey for 1950 so far as capital expenditure was concerned; and what was the amount so included in capital expenditure in the Economic Survey for 1949.

Sir Stafford Cripps (Chancellor of the Exchequer), in a written answer, stated: The value of day-to-day repair and maintenance of the permanent way which has been excluded from the figures of capital investment in the railways in the Economic Survey for 1950 is about £20 million a year. The cost of running repairs to rolling stock and other plant and machinery which has also been excluded is about £75 million a year. Both these items were included in the main table showing investment in the railways on page 51 of the Economic Survey for 1949. In the estimate of total gross fixed investment in Table 7 of the 1949 Survey, however, the expenditure on running repairs to rolling stock and other plant and machinery was excluded.

### Travel Concessions

Mr. Michael Astor (East Surrey—C.) on April 4 asked the Secretary of State for War whether he would consider making travel concessions to wives and dependents of men attending the annual camp of the Territorial services during the period of their yearly holiday.

Mr. John Strachey (Secretary of State for War): This suggestion is being examined.

### Questions on Socialised Industries

Mr. Henderson Stewart (Fife, East—Lib. Nat.) on April 5 asked the Lord President of the Council if he was aware that the present Government policy, whereby Ministers refused to answer Parliamentary questions dealing with the day-to-day administration of nationalised industries, frequently deprived Members of the opportunity of challenging Ministers on matters of public importance; and if he would consider referring the matter to an all-party committee for examination and report.

Mr. A. Bosom (Maidstone—C.) asked the Lord President of the Council, as there was so much of the taxpayers' money involved in the activities of the various nationalised industries, if he would take steps to change the policy whereby Ministers refused to answer questions dealing with matters of importance connected with such activities.

Mr. Herbert Morrison (Lord President of the Council): The Government is anxious that there shall be all reasonable opportunities for Parliamentary discussion of the socialised industries, but the admission of questions on day-to-day administration would be inconsistent with the principle that the boards shall be free from detailed Ministerial or Parliamentary supervision of their commercial operations. The Speaker, however, on June 7, 1948, said that he would be prepared to exercise his discretion to direct the acceptance of questions asking for a statement to be made on matters about which information had been previously refused, provided that, in his opinion, the matters were of sufficient public importance to justify this concession. Members may also have underestimated the opportunities for putting questions down under the existing rules.

The matters on which Ministers are answerable to Parliament, and hence questions can be put down in the normal course, vary with the different socialised industries and the different socialisation statutes. But in each case they cover a wide range, and, in addition to matters of general policy, broadly they include the responsibilities of Ministers in connection with—among other matters—the appointments, salaries and conditions of service of board members; programmes of research

and development; programmes of education and training; borrowing by the boards; forms of accounts and audits; annual reports; pensions schemes and compensation for displacements; the appointment of Consumers' Councils; and other matters connected with their organisation and operation. Under the Speaker's ruling, questions may also be put down about matters of "public importance" for answer at the Minister's discretion, even though they deal with points for which he has no specific responsibility.

No useful purpose would, in my opinion, be served by referring the subject to a committee. I do not follow the statement of Mr. Bosson about so much of the taxpayers' money being involved in the activities of the various nationalised industries.

Mr. Stewart: Is the Lord President aware that, for example, passenger services on considerable stretches of railway in rural parts of Scotland are being cut; that, when I sought to put questions to the Minister on those matters of public importance to thousands of people, the questions were turned down; that that type of problem is not unusual?

Mr. Morrison: As regards transport, I think Mr. Stewart is on a weak point. As far as the Transport Commission is concerned, it has dealt by correspondence from Members of Parliament with no fewer than 3,300 questions and representations which have been put forward. The great majority would, alternatively, have been subject to Parliamentary questions, on which, I am perfectly sure, Members would not have got as much satisfaction. Moreover, as far as transport is concerned, the House has had an opportunity of no fewer than three debates in the last four months, and a number of shorter debates on the adjournment.

#### Losses of W.D. Stores on Railways

Brigadier Terence Clarke (Portsmouth West—C.) on April 4 asked the Secretary of State for War (1) how adjustment was carried out between his department and the railways for stores lost in transit; and

(2) what exact sum had been credited to his department for stores and supplies lost in transit on the railways in 1948.

Mr. John Strachey (Secretary of State for War): Since 1945, losses of War Department stores on the railways have been paid for by means of a percentage rebate on the War Department's railway accounts. In the calendar year 1948 the rebate amounted to £11,895.

Brigadier Clarke: Does the Minister not realise that that is quite different from the answer he gave me the other day, in which he said that both before and since nationalisation stores lost were charged to the railways? In point of fact, this is a concession, and there is no charge at all.

Mr. Strachey: If I may say so, it is a different answer because it is a different question. However, it makes substantially the same point; that the cost of these lost stores falls on the railways and not on the War Department.

#### Level Crossing Accidents

Mr. David Renton (Huntingdon—Lib. Nat.) on April 6 asked the Minister of Transport how many persons had been, respectively, killed and injured in accidents at or on occupational level crossings in 1949.

Mr. Alfred Barnes stated in a written answer: The provisional figures for casualties at occupation level crossings in 1949 were 13 killed and 22 injured; 24 were occupants of road vehicles, and 11 were pedestrians.

#### Argentine Railways

Mr. T. G. D. Galbraith (Glasgow, Hillhead—C.) on April 5 asked the Secretary of State for Foreign Affairs why British nationals employed on the Argentine railways were not allowed to send remittances to their dependents in this country, contrary to the agreement reached with Argentina when the railways were handed over; and what had been the average annual value of such remittances before their prohibition by the Argentine Government.

Mr. Kenneth Younger (Minister of State): The agreement of sale concluded

on February 13, 1947, between Sir Montague Eddy, representing the British-owned railways, and the Argentine Government, did not guarantee the right to remit allowances overseas to dependents of British railway employees. These and similar remittances are governed by Argentine exchange laws and regulations. This was the case even when the railways were in British ownership. As regards the second part of the question, the figures required are not separately classified, and the average annual value of these allowances cannot be established from the sources of information at my disposal.

Mr. Galbraith: Does that answer mean that the Minister is satisfied with the present state of affairs? Is it not a fact that Italian and Spanish nationals are being more favourably treated than British nationals in this matter? In view of the hardship which is being caused to dependents of British nationals employed by Argentine railways, will he not do something to try to deal with this matter in isolation from other currency problems affecting the two countries?

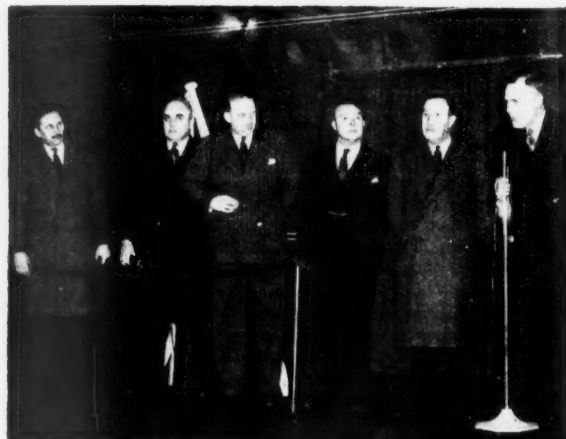
Mr. Younger: It certainly does not mean that we are satisfied with the present position, but it is, unfortunately, the case that we have reason to believe that there has been some discrimination in favour of other nationals. We have made complaints about it, and we are trying to deal with the position. In reply to the second part of Mr. Galbraith's question, as to whether we can deal with it in isolation, it is rather difficult. There are a good many matters under discussion at the moment, but we shall not lose sight of this one. I doubt whether it can be dealt with in complete isolation.

#### East African Expenditure

Mr. A. R. Hurd (Newbury—C.) on April 3 asked the Minister of Food how much of the £33,450,000 advanced to the Overseas Food Corporation had been used for the groundnut scheme in Tanganyika; and how much for the sorghum and pig project in Queensland.

Mr. Stanley Evans (Parliamentary Secre-

### "Port Line" Engine Naming Ceremony at Southampton



Southern Region "Merchant Navy" class locomotive, No. 35027 was named "Port Line" at Southampton Docks on April 24, by Mr. W. Donald, Chairman, Port Line Limited (see page 491 of our last week's issue)

Left: Mr. S. B. Warder, Mechanical & Electrical Engineer, Southern Region, with Mr. R. P. Biddle, Docks & Marine Manager, Southampton, Southern Region, and Mr. Donald. Right: Group of Southern Region Officers at the ceremony with Mr. Donald: Mr. C. Grasemann, Public Relations & Publicity Officer; Mr. Earle Edwards, Southern Divisional Superintendent; Mr. A. E. Hoare, Assistant Superintendent of Motive Power; Mr. Warder; and Mr. Biddle



tary, Ministry of Food): The sum of £32,458.680 has been allocated for expenditure in East Africa, and the balance to projects undertaken by the Queensland-British Food Corporation. Of the first sum referred to, £1,745,328 is recoverable from the East African Railways & Harbour Administration.

### Inter-Allied Railway Club of Paris

The "Nuit de la Locomotive" Ball, organised by the Foyer Interallié des Chemins de Fer (Inter-Allied Railway Club), and held on Friday, April 21, at the building of the Union Internationale des Chemins de Fer, 10, Rue de Prony, Paris, was most successful. About 300 members of the Club and their guests were present and the evening was honoured by the visit of Monsieur Bidault, the Prime Minister, and Madame Bidault, the former replying to a short speech of welcome by Monsieur Durand, the President of the Club. Dancing took place until the early hours of the morning, and entertainment was provided by well-known French artistes. An excellent supper was served by the staff of the Club under the supervision of its steward, Monsieur Charles.

Among those present at the Ball were the chief officers, with their ladies, of the French National Railways, including Messieurs Porchez, Assistant General Manager; Gouisat, Directeur de la Région Nord; Poncet, Directeur de la Région Sud-Est; Scherer, Chef du Service du Contrôle des Recettes; and Aurenge, Chef du Contentieux. Also present were Monsieur Lemaire, President of the International Union of Railways, with Messieurs Tuja and Roumeau, Secretary-General and Assistant Secretary of the Union. Monsieur Ricroch, President of the Paris Metropolitan, American Transportation Officers, and representatives of the Italian, Netherlands, Portuguese, Spanish and Swiss railways attended. The Transportation Club, London, was represented by Mr. R. H. Hacker, a Member of

the Council, and Colonel K. R. N. Speir, the Secretary of the Club. Mr. P. C. Durrant, Representative of the British Railways in Paris, and now Vice-President of the Foyer Interallié des Chemins de fer, spared no effort in the organisation of the function, and with the other officers of the Club was largely responsible for the success of the evening. Mr. Durrant is anxious to enrol more British railway officers as members of the Club and will send full details on application to him.

### Notes and News

**Institution of Civil Engineers.**—The annual general meeting of the Institution of Civil Engineers will be held at the Institution, Great George Street, Westminster, London, S.W.1, at 5.30 p.m. on May 23.

**Boiler Inspector Required.**—A boiler inspector, not over 35 years of age, is required by an oil company in South America, for refinery and oilfield boilers. See Official Notices on page 527.

**Northern Ireland Freight Rates to be Increased.**—Rates for all merchandise, livestock, and parcel traffic by road and rail in Northern Ireland will be increased by 20 per cent. as from June 1. Passenger fares will not be changed.

**L.M.R. Diesel Resumes Euston-Glasgow Run.**—The London Midland Region main-line twin-unit diesel-electric locomotive Nos. 10000 and 10001 resumed duty on the Euston-Glasgow run on May 2. The service is the 9.5 p.m. from Euston and the 10 a.m. from Glasgow.

**British Railways, London Midland Region (London) Dramatic Society.**—On April 27, 28 and 29, the British Railways, London Midland Region (London) Dramatic Society presented "This Happy Breed," by Noel Coward, at the Rudolf Steiner Theatre, Park Road, London, N.W.1. The production, which was under the direction of Mr. Jack Pegg, who made such a success of the part of Frank Gibbons, was skilfully handled. All the players gave ex-

cellent performances, but we feel special mention should be made of those given by Winifred Gibson as Mrs. Flint, Frank's mother-in-law; Ethel, his wife, played by Beckie Pass; Sylvia, his sister, by Nora Chadwick; and Bob Mitchell played by Fred Bishop.

**Chloride Batteries Limited.**—Exhibits covering almost the entire field of battery manufacture will be shown on the stand of Chloride Batteries Limited at the Castle Bromwich Section of the B.I.F. Exide-Ironclad batteries as used for all forms of electric traction will be shown as well as batteries for starting and lighting on all types of diesel vehicles.

**Permanent Way Equipment.**—Exhibits on the stand arranged by the Exors. of James Mills Limited at the B.I.F. will include Macbeth spike anchors and Mills heat-treated steel permanent way fastenings. Mills joints will be shown on a 120-ft. length of steel sleeper track on the outdoor stand of George Cohen, Sons & Co. Ltd., and Macbeth spike anchors on a 46-ft. length of wood sleeper track on the outdoor stand of B.S.A. Cycles Limited.

**Institute of Metals.**—The 1950 Annual May Lecture to the Institute of Metals will be delivered at the Royal Institution, Albemarle Street, London, W.1, on Wednesday, May 10, at 6 p.m.; admission will be free, without ticket, and visitors will be admitted. This year's lecturer is Dr. H. Roxbee Cox, Chief Scientist, Ministry of Fuel & Power, whose subject will be "Industrial Gas Turbines."

**Meeting of G.N.R.(I) Shareholders.**—Having considered a statement issued by the Great Northern Railway (Ireland) a committee of the Shareholders Protection Association in Dublin recently expressed satisfaction that at last something was being done to deal with the G.N.R.(I.). A resolution expressed the view that the delay in dealing with the matter was resulting in economic and industrial uncertainty, and urged both Governments to reach a speedy conclusion to avoid financial chaos. Another resolution stated that any physical



Left to right: MM. Darnis-Gravelle (Principal Secretary to General Manager, S.N.C.F.), Porchez (Assistant General Manager, S.N.C.F.), Tuja (Secretary, International Union of Railways), Lemaire (Chairman, International Union of Railways) and Durand (President, Inter-Allied Railway Club)



Left to right: Mme. Bidault and M. Bidault (Prime Minister's), (seated) Mme. Levy-Lambert, Mme. Ricroch and M. Ricroch (Chairman, Paris Metropolitan Railway), Mlle. Blanchette Brunoy (Inter-Allied Railway Club Hostess); (standing) MM. Porchez, Durand; Lemaire, and Mr. P. C. Durrant, Paris Representative, British Railways, and Vice-President (Inter-Allied Railway Club)

truncation of the system would be calculated to destroy the objective of efficient co-ordination of the transport system of the entire country in its rail and road services. Another resolution expressed appreciation of the policy of the directors in their negotiations. The position of the G.N.R.(I.) is referred to in an editorial note this week.

#### Permanent Way Institution, Irish Section.

—On May 12 the Irish Section of the Permanent Way Institution will visit the G.N.R.(I.) sleeper depot at Dundalk (Barrack Street). Members will inspect the boring, creosoting, and charring of sleepers, and after lunch a paper will be read by Ganger T. McGahey, dealing with the maintenance problems of a length ganger.

**New Iron and Steel Order.**—The Minister of Supply has made the Control of Iron & Steel (No. 78) Order, 1950, which came into operation on May 1, 1950. This amends maximum prices, the principal alterations being an increase in the price of basic pig-iron, which is an adjustment within the steel industry and no increase in price of pig-iron or steel to outside consumers follows from it; and the withdrawal from price control of railway coil springs and laminated railway springs. Copies may be obtained from H.M. Stationery Office or through any bookseller.

**Fuel Allowance for Excursions and Tours and Private Party Work.**—Following the announcement by the Chancellor of the Exchequer that the standard ration for private motorists will be doubled for the year from June 1 next it has been decided that the cut of 12½ per cent. made in 1948 in the fuel ration for buses and coaches used on excursions and tours and for private parties is to be restored in full from the same date. In 1949 half of the 12½ per cent. cut was restored temporarily and in March this year it was announced that a similar restoration was being made for 1950.

#### L.M.R. Women's Ambulance Competition.

—Despite three of their members being newcomers to the team, the Horwich Works ambulance women won the L.M.R. Women's Ambulance Challenge Cup in the British Railways, London Midland Region, finals held recently in London, and they scored 329 points out of 440. Manchester (L.M.R.) Station team, who were the winners of the cup last year, came second with 321 points. There were 15 teams from all parts of the Region competing in the final

this year. The photograph reproduced below shows Mr. John Elliot, Chief Regional Officer, L.M.R., presenting the trophies to the winning teams.

#### Gloucester Railway Carriage & Wagon Co. Ltd.

—At a meeting of the Gloucester Railway Carriage & Wagon Co. Ltd., held on April 26, the following dividend was declared: Interim on ordinary stock of 7½ per cent. actual, 1s. 6d. per £1 unit, less income tax at 9s. in the £1, on account of the year ending May 31, 1950.

#### Aluminium Development Association.

—At the recent annual general meeting of the Aluminium Development Association an encouraging report of activities in 1949 was given by the retiring President, Mr. Kenneth Hall. The new President is Mr. Edward Player, Managing Director of Birmid Industries Limited. Mr. E. Austyn Reynolds, who was elected Vice-President, represents T.I. Aluminium Limited on the Council; and Mr. F. G. Woollard was re-elected as Chairman of the Executive Committee.

#### Disruption of Communications in Southern England.

—Heavy snowfalls in the South of England, principally on the night of April 25-26, disrupted railway and telephone communications over a wide area. Throughout British Railways, Southern Region, some 250 telephone poles were broken, and miles of telephone wires were down; fallen poles and trees blocked several lines and time interval services were operated over some sections. The dislocation to services in London and the Home Counties continued for several days, but by May 1 all Divisions of the Region reported that trains running was almost normal.

#### Metropolitan Assented Stock.

—The trustees, Glyn, Mills & Co., now hold £2,966,207 nominal of British Transport 3 per cent. guaranteed stock 1978-88 as the underlying security for the outstanding £6,540,474 nominal of Metropolitan Assented stock on the following terms:—(1) The trustees will be entitled to call on the B.T.C. to make up the full guaranteed rate of interest of 3 per cent. per annum on the assented stock in respect of each year up to and including the year ending December 31, 1958, and the Commission will be liable to make up the deficiency. (2) After December 31, 1958, when the guarantee of interest by the B.T.C. ceases, the transport stock will be distributed among the holders of assented stock at the

rate of approximately £45 7s. nominal of transport stock for every £100 nominal of assented stock; this will extinguish the assented stock. Interest will, therefore, continue to be received by stockholders at 3 per cent., and will be paid towards the end of January in every year, in respect of the previous calendar year. The last payment of interest will be made after the end of 1958, when stockholders will also receive the appropriate amount of Transport stock.

#### Diesel Engine Users Annual Luncheon.

—Major-General A. E. Davidson, C.B., D.S.O., President, was in the chair at the annual luncheon of the Diesel Engine Users Association in London on April 20, when the principal guest was Dr. Harold Roxbee Cox, Ph.D., Chief Scientist of the Ministry of Fuel & Power. Mr. J. E. Edgecombe, first President of the D.E.U.A., said that the award of the Percy Still Medal had been discontinued during the war, but it had been decided to resume this practice now, and he had much pleasure in presenting medals on this occasion to Mr. A. K. Bruce, Mr. T. Hornbuckle, Mr. R. I. Welsh, and Mr. W. A. Green.

#### Bridge Reconstruction near Pollokshields (West).

—The Nithsdale Road section of the bridge carrying the busy Nithsdale Road-Darnley Road-Strathbush Station artery in Glasgow over the Cathcart Circle line near Pollokshields (West) Station, was reopened on April 15 for tram and vehicular traffic. Work on the reconstruction of the bridge began on February 7, 1949, and although during the operations there has been considerable disruption of road traffic, including the closing of streets and interference with the Mount Florida-Paisley Road tramway service, the work has proceeded without dislocation of, or alteration to, the local train services. It will be some time before work on the remaining sections of the bridge is completed.

#### Institute of Transport, Tees-Side Section, Annual Dinner.

—The annual dinner of the Institute of Transport, Tees-Side Section, took place at the Zetland Hotel, Saltburn, on March 24. Brigadier-General Sir H. Osborne Mance, President, responded to the toast of "The Institute," proposed by Mr. J. Swales; the toast "The Guests" was proposed by Mr. A. C. W. Impey, and Mr. A. T. S. Zeally, President of the Tees-Side & District Development Board, responded. Mr. B. Harrison, Chairman of the Section, presided. The President presented to Mr. A. Bailes the certificate of the Dock & Harbour Authorities Association Award made to him last session, for his paper on "The payment of dock workers under the National Dock Labour Board."

#### British Institute of Management.

—The Spring Management Conference of the British Institute of Management will be held at Cliftonville, near Margate, from May 18 to 21. The following papers will be read at the Conference: "Managers—Are They Human?" by Mr. Nigel Balchin, on May 18, at 9 p.m.; "The Challenge to British Management," by Mr. W. J. Kenney, Minister in Charge, Economic Co-Operation Administration, U.K., on May 20 at 9 p.m.; "Management and Democracy," by Professor G. D. H. Cole, Chichele Professor of Social & Political Theory, Oxford University, on May 21 at 10 a.m. In addition there are 15 sectional meetings on practical problems relevant to industrial management practice, as well as two panel discussions on the attitude of management towards trades unions in the



Mr. John Elliot, Chief Regional Officer, London Midland Region, presenting trophies to the winning teams in the L.M.R. Women's Ambulance Competition (see paragraph above)

## OFFICIAL NOTICES

**INTERNATIONAL RAILWAY ASSOCIATIONS.** Notes on the work of the various associations concerned with international traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**TRANSPORT ADMINISTRATION IN TROPICAL DEPENDENCIES.** By George V. O. Bulkeley, C.B.E., M.I.Mech.E. With chapters on Finance, Accounting and Statistical Method. In collaboration with Ernest J. Smith, F.C.I.S., formerly Chief Accountant, Nigerian Government Railways. 190 pages Medium 8vo. Full cloth. Price 20s. By post 20s. 6d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**REQUIRED** by Major Oil Company in South America. Boiler Inspector for refinery and oilfield boilers. Candidates must have thorough knowledge of boilers in general and also some knowledge of modern type oilfield boilers, be prepared to train and supervise boiler repair crews and make internal inspections. Age limit approximately 35 years. Initial contract 3 years; prospects permanent career. Free passage out and return on completion contract with paid home leave United Kingdom. £75 outfit allowance. Pension scheme. Salary dependent age, qualifications and experience. Full details at interview. Travelling expenses to London paid.—Write full details Box Z.O.154. DEACON'S ADVERTISING, 36, Leadenhall Street, London, E.C.3.

**SECTIONED PERSPECTIVE VIEW OF LOCOMOTIVE FRONT END.** A notable drawing of L.M.S.R. class "7P" 4-6-2 locomotive of the latest type. Reprinted from *The Railway Gazette*, June 15, 1945. Price 2s. 6d. Post free 2s. 8d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**OFFICIAL ADVERTISEMENTS** intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page in the current week's issue is 9.30 a.m. on the preceding Monday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

light of the latter's changing rôle, and whether the scope for effective use of accounting information by management is exaggerated. There will also be some 64 subjects for informal discussion.

**"British Steam Horses."**—We regret that in our review of "British Steam Horses," a book on the locomotive by Mr. George Dow, Public Relations & Publicity Officer, London Midland Region, which appeared in our April 28 issue, a quotation from the "History of Bradshaw" was incorrectly attributed to Mr. G. Royde Smith. In fact the statement should have been attributed to a friend of Bradshaw, and was reported as such in Mr. Royde Smith's book.

**Cricket Information at London Transport Stations.**—Arrangements will again be made during the coming cricket season whereby current information concerning conditions at Lords will be displayed at important London Transport stations. The object is to save passengers making wasted journeys. Such information as "Ground Full and Closed," "Rain Stopped Play," and "Play Resumed" will appear on blackboards in the ticket halls.

**Special Trains for the B.I.F.**—Two special trains with restaurant cars will leave Euston at 8.20 a.m. (third class) and 8.45 a.m. (first class) daily except Saturdays from May 8-19 for the convenience of visitors to the B.I.F. at Castle Bromwich. The London Midland Region has also arranged for 20 main-line trains to stop specially at Castle Bromwich and a frequent service of local trains between Birmingham and Castle Bromwich will be maintained.

**Standard Compartment for Guards.**—British Railways standard passenger rolling-stock of the future will incorporate a standard guard's compartment, which has been designed by railway engineers in consultation with the Trade Unions. The compartment will have a revolving tub seat, periscope look-out, and electric food warmer, and it will be steam-heated. To make for easy boarding of the train, the outside door of the compartment will open inwards, and a sliding door will lead from the compartment into the corridor. The standard stock is expected to be in service in 1951.

**Birmingham-London Service Proposed Improvements.**—A meeting took place on May 2 between the Railway Executive and a joint deputation on behalf of the Birmingham City Council, the Birmingham Chamber of Commerce (Transport Committee), and the Midland Regional Board for Industry, to discuss criticisms of, and suggestions for improving, the Birmingham-London Service. The deputation, which was headed by Alderman J. C. Burman, Deputy Lord Mayor and Chairman of the General Purposes Committee of the Birmingham City Council, was welcomed on behalf of the Railway

Executive by Mr. V. M. Barrington-Ward (Member of the Executive for Operating). The main points of the Railway Executive's reply were that every effort would be made to reduce the London-Birmingham timings to 2 hr. 10 min. with one intermediate stop, but this would not be possible before the summer of 1951. A new breakfast car train from Euston at 8.5 a.m., calling at Watford and Coventry; the naming of the 9 a.m. Paddington-Wolverhampton the "Inter-City"; and a new morning up train, the "Midlander," by the L.M.R. route, have been proposed, and various other improvements are being studied.

**New London Transport Trolleybus and Tram Map.**—An improved trolleybus and tram folder map has been issued by London Transport; it conforms to the present bus map in that routes are shown on a geographical instead of a diagrammatic basis. Underground lines and stations are included and a special section to a larger scale covers the central area of London.

**Crompton Parkinson Traction Motors for Canada.**—From the Toronto Transport Commission the firm of Crompton Parkinson Limited has received an order for traction motors which is of particular interest because the motors have to be mechanically and electrically interchangeable with the latest type of American motor fitted to their P.C.C. trams. All

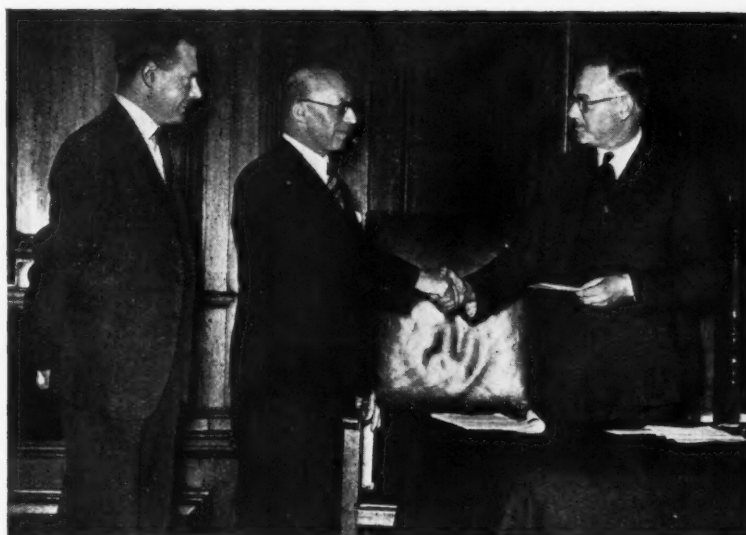
external fittings and significant dimensions will be the same as those of the American machines, and certain renewable parts, such as brushes, will be identical so as to avoid any departure from the established system of standardised replacement and maintenance.

**Agreed Charges.**—Applications for the approval of a number of further agreed charges under the provisions of section 37 of the Road & Rail Traffic Act, 1933, have been lodged with the Transport Tribunal. Notices of objection must be lodged on or before May 16 next.

**L.M.R. Weed-Killing Train.**—During the next few months two weed-killing trains will tour nearly 3,500 miles of British Railways, London Midland Region. One train left Crewe on April 17 and the other will leave Derby on May 10. The trains comprise an engine, tank wagons containing the weed-killing solution, and sleeping and dining coaches for the staff and their cook. 183,000 gal. of concentrate will be used.

**Scottish Region Bothwell Branch to be Closed.**—The former L.M.S.R. Bothwell branch from Fallside on the Glasgow-Motherwell main-line will be closed on and from Monday, June 5; Bothwell (L.M.S.R.) is the only station affected by the closure. An alternative passenger-train service is available at Bothwell (L.N.E.R.) Station

## Southern Region Debating Society



Mr. C. P. Hopkins, Chief Regional Officer, congratulating the winner of the first prize in the Southern Region Debating Society Essay Competition (see paragraph in our April 14 issue)



and a regular bus service operates between Uddington, (L.M.S.R.) and Bothwell. Parcels, miscellaneous and sundry goods traffic will continue to be collected and delivered by Railway Executive vehicle based on Uddington (L.M.S.R.) Station; freight-train traffic in full wagon loads will be dealt with at Bothwell (L.N.E.R.) Station.

**Steel-Castings for Rolling Stock.**—There will be an extensive display of castings and other products on the stand of the English Steel Corporation and its subsidiaries at the British Industries Fair. Included will be one of the first one-piece cast-steel frames for an electric motor-coach to be built in this country. These are being supplied to The English Electric Co. Ltd. for electric locomotives and other electric traction stock for the New Zealand Government Railways. The cast-steel motor casings and bolster of the bogie, as well as the coil and laminated suspension springs, are also supplied by the English Steel Corporation, while the wheels and axles are a product of the subsidiary company, Taylor Bros. & Co. Ltd., Trafford Park, Manchester.

## Forthcoming Meetings

Until May 14 (Sun.).—Liege International Fair; Mining, Metallurgy, Mechanical and Electrical Engineering.

May 5 (Fri.).—Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 5.30 p.m. Discussion: "Education and Training in Engineering Management," introduced by Mr. H. G. Nelson.

May 5 (Fri.).—Scottish Society of Students of the Locomotive, at the Boardroom, Scottish Regional Headquarters, 302, Buchanan Street, Glasgow, C.4, at 7.30 p.m. Open Discussion: "Some features of locomotive design which could be adopted as standard by British Railways."

May 6 (Sat.).—Electric Railway Society, at Fred Tallant Hall, Drummond Street, London, N.W.1, at 3 p.m. "Early Underground Signalling and its Developments," by Mr. T. S. Lascelles.

May 9 (Tue.).—Institution of Civil Engineers, Great George Street, London, S.W.1, at 5.30 p.m. "Maintenance Considerations Affecting the Design of Railway Structures," by Mr. L. E. Hawkins.

May 10 (Wed.).—Institute of Metals, at the Royal Institution, Albemarle Street, London, W.1, at 6 p.m. Annual May Lecture: "Industrial Gas Turbines," by Dr. H. Roxbee Cox, Chief Scientist, Ministry of Fuel & Power.

May 12 (Fri.).—Institution of Locomotive Engineers, summer meeting at Swindon. Party assembles at Paddington Station for special train due to depart approximately at 11.50 a.m.

May 13 (Sat.).—Permanent Way Institution, London Section, visit to Severn Tunnel Pumping Station. Leave Paddington Station 8.55 a.m.

May 13 (Sat.).—Permanent Way Institution, Manchester & Liverpool Section, at Southport. Lecture & Exhibition. "High Speed Tools for High Speed Track," by Mr. E. H. Tustain, of Abtus Limited.

May 13 (Sat.) to 21 (Sun.).—Stephenson Locomotive Society, Spring tour of railways, works, and running sheds in Eire and Northern Ireland.

## Railway Stock Market

The dominating influence has been a tendency to await the result of the British Electricity issue. British Funds have again moved lower on balance at the time of going to press, which has made for continued uncertainty in other sections. Industrial shares moved narrowly, but were slightly lower, due partly to the reduced profits reported by Imperial Chemical Industries, whose earnings have declined from the particularly good level achieved in 1948 and are now back to the 1947 level. Many companies with big overseas interests, it now seems, were affected by the minor trade recession in U.S.A. during 1949 and by devaluation of sterling. Reflecting the lower trend in British Funds, British Transport 3 per cent. (1978-88) has receded to 88½, while Transport 3 per cent. (1967-72) was 91½ and the 3 per cent. (1968-73) 93½.

United of Havana stocks, though active, lost part of earlier gains, as it may be months before it is known whether take-over talks have progressed sufficiently for final negotiations to be continued in London. At the time of going to press, the 1906 debentures have eased to 26, the 4 per cent. debentures are 16, and Havana Terminal 5 per cent. debentures 90.

Now that the scheme of arrangement has received the necessary support from debenture and stockholders, Leopoldina stocks have been less active, though steadier. The ordinary was 9½, the preference 24½, the 4 per cent. debentures 93 and the 6½ per cent. debentures 132. Leopoldina Terminal 5 per cent. debentures were 89 and the ordinary units 1s. 9d.

Great Western of Brazil have been firm at 140s. 7½d. San Paulo 10s. units were active and higher at 15s. 9d. Antofagasta ordinary eased to 7½, while the preference stock was 42, and Taltal shares again changed hands around 19s., while Nitrate Rails at 72s. 6d. were unaffected by the higher tariffs. Brazil Rail gold bonds were 42½. Manila "A" debentures kept at 86½ and the preference shares at 8s. 9d. Mexican Central "A" were 35 and Mexican Railway 6 per cent. debentures 60. La Guaira & Caracas were 70; elsewhere, Costa Rica stocks changed hands, the ordinary around 5½, the 6½ per cent. debentures up to 45 and the second debentures

at 20. Canadian Pacific remained an active feature around 29½, with the preference stock at 66½ and the 4 per cent. debentures 94½. White Pass Yukon 6 per cent. debentures were 68.

Road Transport shares were steady, on the developments in Parliament, and on the view that the British Transport Commission is now unlikely to make further acquisitions of road transport concerns until this and similar questions are finally decided by the next General Election. Maidstone & District changed hands at 89s. 6d. Lancashire United were 80s., Southdown 121s. 3d. and West Riding 59s. B.E.T. deferred stock fluctuated around 420 earlier in the week. Meanwhile, road transport shares continue to be held firmly. The general assumption is that, although profits must be expected to reflect higher costs, prospects of dividends being maintained are good; and that in the event of acquisition by the B.T.C., take-over terms will be above current market prices.

Iron and steel shares have been firm, particularly Stewarts and Lloyds; these have risen to 53s. 9d. under the influence of the good profits which reflect benefits from the large capital outlay by the company in recent years on its development plan. Guest Keen at 42s. 9d. were firm in anticipation of the forthcoming results, and Lancashire Steel at 30s. 3d. were helped by the past year's figures. Beardmores, 42s. 3d., however, lost part of their recent rise. Helped by the good Stewarts and Lloyds' profits, Tube Investments strengthened to £5½. Vickers at 28s. 3d. showed firmness, awaiting the results and annual report.

Locomotive building and engineering shares generally held recent gains, sentiment still reflecting the past year's results, which drew attention to the attractive yields shown by the shares and to the good prospects of dividends being maintained. Recently there has been news of further valuable overseas contracts. Vulcan Foundry were 20s., North British Locomotive 63s. 6d., Beyer Peacock 21s., and Wagon Repairs 16s. 9d. Gloucester Wagon were 47s. 6d. and Hurst Nelson 57s. at Glasgow. Elsewhere, T. W. Ward changed hands around 57s., and Birmingham Railway Carriage & Wagon were 28s. 3d.

## Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date	
			Total this year	Inc. or dec. compared with 1947-48		Total 1948-49	Increase or decrease
South & Central America	Antofagasta ...	811	23.4.50	£ 71,330 + £ 510	16	£ 943,014	—
	Costa Rica ...	281	Feb., 1950	c685,032 — c248,448	35	c6,604,802	—
	Dorada ...	70	Mar., 1950	48,466 + 17,609	13	126,471	+
	Inter. Ctl. Amer. ...	794	Feb., 1950	\$1,181,630 + \$182,446	8	\$2,468,266	+
	La Guaira ...	224	Mar., 1950	\$105,900 — \$7,858	13	\$263,249	—
	Nitrate ...	382	15.4.50	22,401 + 4,049	15	143,095	+
	Paraguay Cent. ...	274	21.4.50	£ 178,920 + £ 67,659	42	£ 6,101,776	+
	Peru Corp. ...	1,050	Mar., 1950	\$7,191,700 + \$2,915,939	39	\$53,397,058	+
	" (Bolivian Section)	66	Mar., 1950	Bs.5,608,500 — Bs.3,076,230	39	Bs.87,346,664	+
	Salvador ...	100	Dec., 1949	c278,000 + c11,000	26	c730,000	—
Canada	Taltal ...	154	Mar., 1950	17,595 + 6,185	39	120,640	+
	Canadian National†	23,473	Mar., 1950	14,955,000 + 1,143,000	13	38,890,000	+
Various	Canadian Pacific†	17,037	Feb., 1950	8,801,000 — 166,000	8	16,982,000	—
	Barsi Light* ...	167	Mar., 1950	34,522 + 3,022	52	358,762	+
	Egyptian Delta ...	607	20.3.50	17,981 — 329	51	663,540	—
	Gold Coast ...	536	Feb., 1950	234,159 — 6,199	48	2,547,700	—
	Mid. of W. Australia	277	Feb., 1950	30,534 + 3,578	35	242,095	+
	Nigeria ...	1,900	Jan., 1950	502,360 + 38,978	44	5,017,814	+
	South Africa ...	13,347	25.3.50	1,410,483 + 27,331	51	75,349,318	+
	Victoria ...	4,744	Jan., 1950	2,000,259 + 49,658	31	—	—

\* Receipts are calculated @ 1s. 6d. to the rupee

† Calculated at \$3 to £1